

October 1947

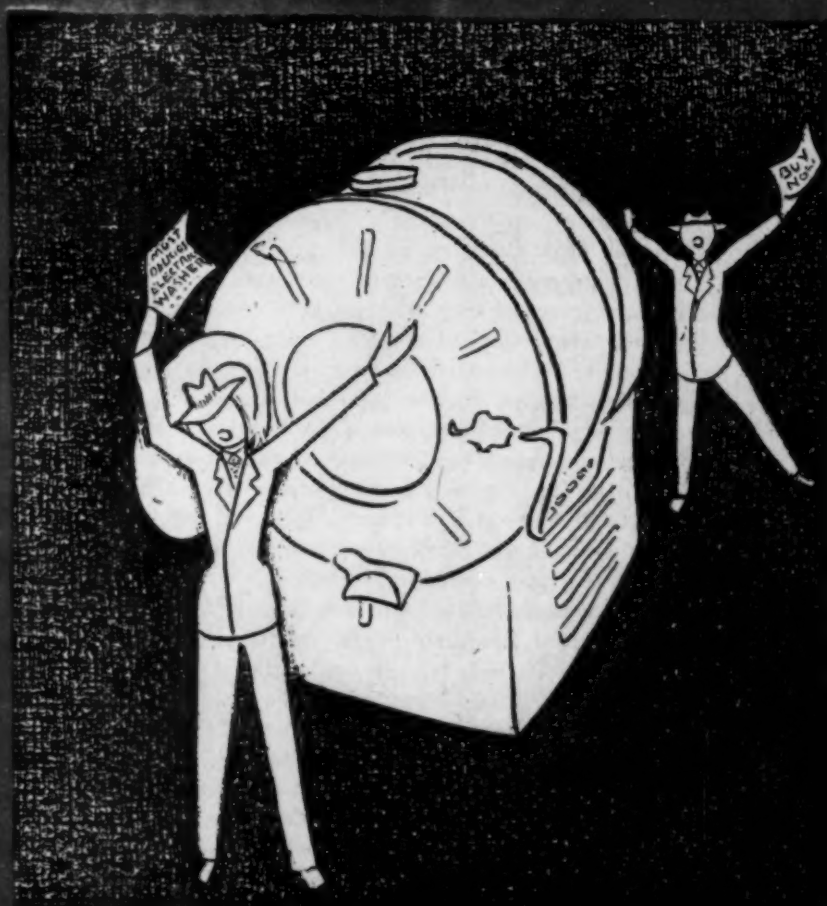
consumer reports

Automatic Washers

LAUNDROMAT • BENDIX

BLACKSTONE • LAUNDERALL

and the **THOR** semi-automatic



Children's shoes

Table model radios

Electric heaters

The meat market

Auto seal covers

Winter motor oils

Vaccines for flu

The Tucker car

PUBLISHED MONTHLY BY CONSUMERS UNION

YOUR HEALTH • YOUR HOME • YOUR CAR
BREAD • BUTTER • GOVERNMENT ACTIONS
MOVIE POLL • RECORDS • GARDENING

The food crisis —how to meet it

[AN EDITORIAL]

President Truman has appealed to the American people for their cooperation in a voluntary food conservation program. The aim of this program is to provide the shipments of food required to prevent starvation in Europe this coming winter.

Every bit of food that is saved by consumers can help save lives abroad. Each family must do its share in seeing to it that enough food is shipped to meet the minimum needs of the hungry peoples of Europe.

As an emergency first step, the President's appeal should get the full-hearted support of all consumers. But while food is being conserved, the government has the responsibility of taking other and more effective measures for controlling the distribution and the prices of food.

The appeal for conservation will not in itself assure fair distribution nor will it stop the inflation in food prices, any more than similar appeals have in the past. Unless the inflation in food prices is halted and reversed, the nutritional standards of millions of American families will be seriously endangered. At the same time, rising food prices will hamper shipments abroad by making it too costly to fill even minimum requirements.

Conservation alone is not enough

The way to protect American living standards, particularly of the low- and fixed-income groups, and to assure that all available supplies go where they are most needed is to use the methods that proved successful during the war. These are price control, consumer food subsidies, rationing and allocations. It is all the more necessary to use these tested methods today, since the nation faces an even more dangerous situation and does not have the large surpluses of food which it was able to fall back upon at the beginning of the war.

President Truman has the duty of calling a special session of Congress immediately to enact a program that will overcome the crisis in food. Dr. Colston E. Warne, President of Consumers Union, outlined what must be done in a statement presented to the Joint Congressional Committee on the Economic Report at one of its New York hearings on September 24. Some of the highlights of that statement follow:

"Consumers Union firmly believes that the American people prefer an effective system of controls, under which each family can obtain its fair share of food at reasonable prices, to a runaway inflation which leaves

an increasing number of families with no alternative but a sharp reduction in their living standards. Nothing short of a system of controls over food prices will overcome the present crisis.

"While we believe that an over-all price control program would be needed to combat the full force of inflation, we are not recommending this at the present time. We are limiting our proposals to control on food because, as has already been indicated, food prices are more out of line than all others, and most directly affect the welfare of the people.

"Furthermore, we believe that such a program as we propose could be instituted practically immediately,

CONTINUED ON PAGE 417



The new look and the old shell game

The women's clothing industry recently made a unique contribution to the welfare of the American people. It has decreed new styles with low hemlines, draped hips, wasp waists, and other evocative gingerbread. And it is busily attempting to blackmail women into abandoning their existing wardrobes so that they can outfit themselves

with new ones at exorbitant prices.

Everybody seems to be delighted with this economic shell game except, happily, the women. The textile manufacturers are busy running up the prices of fabrics. The women's clothing manufacturers are happy for the moment because they figure they will sooner or later "buffalo" the women. Advertising people are happy because they are engaged in heavy sales campaigns to beat down reluctant shoppers. Even the alteration people are happy, fondly hoping that women who can't afford the new styles will at least lengthen their short dresses.

So everybody is happy except the American woman, who is trying to make ends meet as prices continue to skyrocket on all essentials. Her wardrobe is obsolescent — or so the advertisements tell her — and to dress in style will require new and heavy expenditures. Most women can afford this tribute only by reducing their expenditures for food.

The whole business is a particularly nasty fraud. Along with everything else, it is surely a social crime of a high order to waste fabrics on frills that nobody needs when millions of people abroad have nothing to wear except the rags on their backs.

But it is hard to believe that women will fall for it. Last year women refused to buy overpriced dresses. And it may be hoped that their common sense will prevail again this year. Indeed, they can make a kind of contribution to the fight against inflation by leaving manufacturers and distributors with great, big unsold stocks of the new style dresses — then maybe these can be altered into so many more short dresses at great, big price reductions.

consumer reports

COPYRIGHT 1947 BY CONSUMERS UNION

CONTENTS OF THIS ISSUE

OCTOBER 1947

VOLUME 12, NUMBER 10

DIRECTOR Arthur Kallet
ASSISTANT DIRECTOR Madeline Ross
TECHNICAL DIRECTOR Morris Kaplan

STAFF ASSOCIATES

Karl V. Amatneek (*head of electrical division*), Rissel Bonoff (*senior chemist*), Florence Gluesing (*librarian*), Dorothy Steele (*office manager*), Sidney Wang (*head of textile division*).

BOARD OF DIRECTORS

Colston E. Warne (*president*), Hartley W. Cross (*vice-president*), Harold Aaron, M.D. (*secretary*), Bernard J. Reis (*treasurer*), Eleanor C. Anderson, Frank Beube, D.D.S., Fannie Donchin (*staff representative*), Osmond K. Fraenkel, Leland Gordon, Harry Grundfest, Helen Hall, Jerome Hellerstein, Arthur Kallet, Paul J. Kern, Emanuel Klein, M.D., Edward Reich, Madeline Ross, Adelaide Schulkind.

CONSULTING EDITOR Dexter Masters
MANAGING EDITOR Jean Whitehill
ASSISTANTS Lucie Sewell, Chester Tanaka

CONSUMER REPORTS is prepared under union conditions by contract with Local 18 of the UOPWA, CIO.

SUBSCRIPTION RATES are \$5 a year for the monthly *Reports* including the December annual *Buying Guide* issue — \$8.50 for two years. Add 50¢ for foreign and Canadian subscriptions. Reduced rates are available for groups of five or more; write for details.

CONSUMER REPORTS is published monthly by Consumers Union of United States, Inc., 17 Union Square West, New York 3, N. Y. Entered as second-class matter January 23, 1943, at the Post Office in New York, N. Y., under the Act of March 3, 1879. Additional entry at the Post Office at Concord, N. H. 2

| | | | |
|---------------------------------------|-----|---|-----|
| Inflation & consumer ac- tion..... | 374 | The shape of things..... | 399 |
| The "new look"..... | 374 | Safety at home..... | 400 |
| For the people..... | 376 | Winter vs. gardens..... | 402 |
| Washing machines..... | 377 | Heart disease: the major types and causes..... | 404 |
| Children's shoes..... | 381 | Mineral oil..... | 406 |
| The Tucker car..... | 385 | Flu shots..... | 407 |
| Auto seat covers..... | 387 | Bread & Butter: the meat market..... | 409 |
| Table model radios..... | 390 | Winter car care..... | 414 |
| Winter motor oils..... | 394 | Notes on new records.... | 416 |
| Electric heaters..... | 396 | CU's movie poll..... | 419 |

Product ratings represent the best judgment of staff technicians or of consultants in university, government, and private laboratories. Test samples are purchased on the open market by CU's shoppers. Ratings are based on laboratory tests, controlled use tests, authoritative opinion, experience of a large number of persons, or a combination of these factors. Interpretation even of test findings is a matter on which expert opinion may differ. It is CU's pledge that opinions affecting its ratings shall be as free from bias as it is possible to make them.

Letters from CU Readers

Dear CU:

My son, home from the Army a year ago, decided to make his home really top-notch economically. He intended to put to use everything he learned in service. I was ordered to subscribe to your *CU Reports*. I pleaded that I was a wonderful shopper, but gave in.

Sure enough, most of my buying for the last dozen years was listed as "Acceptable." His respect for me increased.

Now we both send our respects on to you.

Detroit, Michigan

MARY A. GALLARNO

Dear CU:

You certainly do have some selfish "dopes" writing in. Such as the one I have in mind, who apparently never goes to the movies — and would have those who do attend take a chance on seeing a much advertised picture that would rate fair or poor with the public or in CU's poll.

Well, I don't go to the movies much — but I do appreciate being able to pick out something good and am glad to help others with my very humble opinion.

Compton, California

B. M. K.

Dear CU:

Just a note to let you know that not all

agree with the letter to the editor in the July issue, regarding the new movie section. I consider it the best feature in the magazine and use it more than any other. I wish to see it expanded to twice its size, including more recent movies. Anything I can do to help I would consider a pleasure. If it is dropped, I'd consider doing same!

S. L.

Chicago, Illinois

Dear CU:

I question the desirability of the opinions of the conscientious person who objects to testing \$1000 radios (*Reports*, July). I am somewhat reassured by your attitude, and frankly, I quite selfishly hope you will ignore his advice.

I don't earn anything like \$10,000 a year. I desire to receive full value for every dollar spent, as this thoughtful person so aptly writes. Nevertheless, I have no objection to the testing and reporting on new automobiles. You have my blessing, although I think I can more easily afford a \$1000 radio than a \$1600 or \$2400 pleasure car, which would give me less pleasure than the radio. My hearing is more sensitive than my behind. . . .

Our helpful and befuddled benefactor seems to miss the possibility that I take CU

Continued on page 418

Next month

The November issue of the **Reports** will concentrate on ratings of products and buying information of special interest to Christmas shoppers, who have a hard job ahead of them in this year of inflated prices. The November **Reports** will do all it can to make buying decisions easier, to provide a helping hand through the complex markets of 1947. Some of the reports scheduled for that issue which you will not want to miss:

Cameras amateur cameras of many different types—box, folding, miniature

Electric shavers a survey, with test ratings, of the latest models

Phonograph records jazz, classical, and special records for children

Lighters table and pocket model cigarette lighters, and one pipe lighter

Auto accessories gauges, fog lights, mirrors, visors . . . even burglar alarms

Silver-plated flatware ratings of well-known brands and an appraisal of patterns

Toilet water 100 brands—tested by the educated nose of an expert

Prints reproductions of paintings and original prints

Coffee makers electric automatic and non-automatic, vacuum and percolator types

Electric blankets the results of CU's tests on six brands

Men's hats Adams, Stetson, Lee, etc.—the nationally advertised brands in the \$5 to \$15 range

"Of-the-month" clubs books, records, fruit, flowers—all the many mail-order merchandise clubs

And more gifts CU's design consult offers some comments on kitchen utensils, furniture, built-in cupboards and other gift suggestions

AND IN DECEMBER—

The 1948 Buying Guide Issue

384 PAGES—POCKET SIZE

376 — OCTOBER 1947

The following developments and actions have been cited in recent reports issued by the Federal Trade Commission, the Department of Justice, and the Food & Drug Administration.

...for the
PEOPLE

Tire monopoly

According to charges brought by the Department of Justice in a criminal complaint filed in a New York Federal court, several tire companies have gotten together on discounts, bonuses, warranties, types of tires, and prices. In addition to price fixing, the Justice Department claims that the companies divided sales territories, limited output, and agreed in other ways to cut competition.

The companies listed in the charge are: Goodyear Tire & Rubber Co., General Tire & Rubber Co., B. F. Goodrich Co., Firestone Tire & Rubber Co., U. S. Rubber Co., Lee Tire & Rubber Co., Dayton Ohio Rubber Co., Seiberling Rubber Co., and the Rubber Manufacturers Association. These companies not only do a great part of the tire and inner tube business in the United States but also much of the rubber products business.

The suit was filed after an investigation resulting from complaints by independent tire dealers. The Justice Department claims that the recent price cuts for tires occurred about 14 months after the issuance of subpoenas and during the investigation on this case.

Technicolor

Technicolor, Inc., Technicolor Motion Picture Corp., and Eastman Kodak Co. have been accused by the Justice Department of conspiring to dominate the color movie business and to keep other firms out of it. A civil action will be heard in the Federal court in Los Angeles.

Technicolor, the leader in the field, has been doing over 90% of all professional color movie business. Since 1934 it has been making positive prints for most of the shorts and animated cartoons, and for all Class A pictures. According to John Sonnett, Assistant Attorney General, Technicolor made arrangements with Eastman Kodak Co. for exclusive use of patents, new developments and technical information. In its suit, the Government asked the court to cancel these special arrangements and open up the color movie field.

Mr. Clark strikes oil

A suit has been filed by the Department of Justice against the Richfield Oil Co. charging the company with illegally using exclusive contracts and agreements with approximately 2600 operators of service stations in California, Oregon, Washington, Texas, and other states. Under agreements which they must sign in order to handle

Richfield products, the retail outlets are prohibited from selling products of other companies.

Attorney General Clark has pointed out that this suit is one of a series of antitrust actions designed to break up the illegal control by certain oil companies of service stations, whereby competition in the retail sale of petroleum products is restrained and independent producers of such products excluded from access to widespread distributing outlets.

Made in America

A complaint against Benson & Hedges, manufacturers of expensive cigarettes, was dismissed by the FTC after the company promised to stop representing that its cigarettes are of English origin and manufacture. The corporation agreed to restyle its packages and modify its advertising for the following brands: *Parliament*, *Virginia Rounds*, *Virginia Ovals*, *Russian*, *Turkish* and *The Greys*.

Packages will no longer show heraldic devices or coats of arms, and the new illustrations will have no possible resemblance to any foreign emblem. Also, no reference to London or Montreal will appear and no longer may such phrases be used, as, "By Appointment to His Majesty the King," or "Used by our London house for the English market for generations past." The new packages must show clearly the American manufacturer and give the New York address of the company.

The olive in olive oil

As a result of an FTC stipulation, R. Gerber & Co. of Chicago has agreed to stop using the misleading brand name *Gerber's Olive Oil Shampoo* for a shampoo of which the oil content is not wholly olive. If enough olive oil is present in the shampoo to affect the detergent or other qualities of the product substantially, and if it is made evident that the preparation is not wholly olive oil, the brand name "Gerber's Shampoo with Olive Oil" may be used.

Dangerous drug

A quantity of *Re-Sude-Oids*, a product claimed to be an effective remedy for obesity due to hypothyroidism caused chiefly by the deficient action of the thyroid glands, or the pituitary and ovarian glands, was found to be "unsafe, dangerous, inappropriate, and ineffective as a treatment for such conditions."

Continued on page 418



Coin machines, such as those in the widespread Launderettes, have contributed a good deal to the automatic's great popularity

AUTOMATIC WASHERS

Automatic washers have been hard to get, but they still seem to lead the appliance parade.

CU presents preliminary findings on five machines — four automatic, one semi-automatic

The automatic washing machine, one of the most eagerly awaited of postwar home appliances, has also been one of the slowest to find its way to the retail stores. A good many people — including CU's shoppers — had to wait a long time before they could make a purchase, or are still waiting for machines which have been announced but which are not yet available.

Meanwhile, interest has boomed. Because there has been so much interest in these machines, this preliminary report on four of them — *Bendix*, *Laundromat*, *Launderall* and *Blackstone* — is issued now, before CU's tests for wear (both on the machines and on the clothes they wash) are finished. Results of the completed tests, as well as information on other automatic machines as they become available, will appear in future issues.

Besides the four machines listed above, this report also includes a discussion of the *Thor Automagic*, a machine which cannot be considered automatic, but which offers some conveniences that other non-automatic, spinner-type machines do not have.

An automatic washing machine washes, rinses, and damp dries; it drains, spins, refills when necessary, and shuts itself off when the cycle is complete, all without any help from the housewife. All she has to do is to put in the clothes and the soap, and set the controls to start things off — all of which takes but a few minutes.

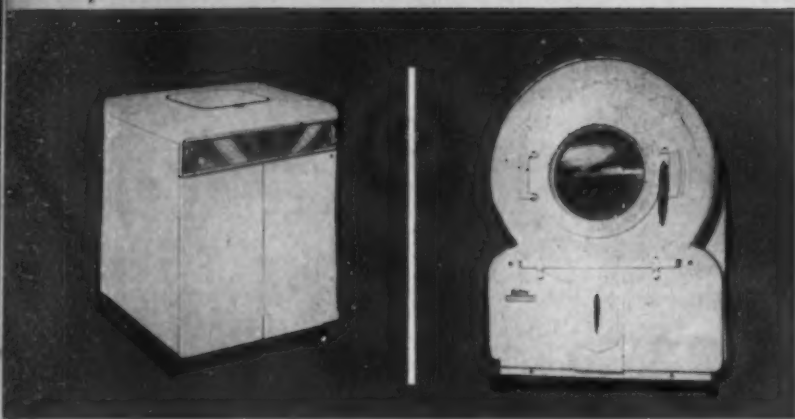
With the *Thor* the operator has to push the buttons and turn the water taps to start and stop each new stage of the wash-spin-rinse cycle. But the *Thor* requires no moving or handling of clothes between the initial loading and final unloading and, for this reason, might be considered a kind of semi-automatic machine.

How clean will they get your clothes?

It should be said at the outset that none of the automatic washers tested gets clothes as clean as the best of the non-automatic washers do. The *Blackstone* topped the other three automatics by a considerable margin; but even so, its washing ability was only as good as that of an average non-automatic machine, and inferior to that of the *Thor*. If your washing includes very dirty clothes, therefore, you may be better off with a non-automatic machine of above-average washing ability.

The *Bendix*, *Laundromat* and *Launderall* were just about equal in washing ability. But this rating of the *Launderall* is doubly tentative, because the automatic valves of the sample CU purchased and tested were not delivering the required volume of water. The tests are being repeated with this shortcoming adjusted.

To test the cleaning ability of the machines, cotton clothes soiled in accordance with specifications set up by the U. S. Navy Department were put through the regu-



Automatic washers tested cost from \$345 for Blackstone (left) to \$239.50 for Bendix (right). Blackstone was best machine tested

lar washing procedures. Water softener and soap flakes were used. The whiteness of the cleaned clothes was determined by means of a "reflectometer."

The tests for washing ability were conducted first with the loading recommended by the manufacturer, and then with a smaller (six-pound) load in each machine. The recommended load for the *Laundromat* is ten pounds; for the *Laundromat* and *Bendix*, nine; and for the *Blackstone*, eight. Of the four, the *Bendix*, *Laundromat* and *Laundromat* washed clothes somewhat cleaner at the reduced load, but still didn't catch up with the *Blackstone*, even when that machine was run at maximum loading.

Manufacturers' recommended loadings should never be used as a basis for comparing capacities of washing machines. Apparently each manufacturer has his own idea of just how tightly the clothes load may be packed into a machine. It may be difficult, for instance, to get the full nine-pound load into the *Bendix*, while the *Blackstone* could easily hold more than the recommended eight pounds. In CU's opinion, the useful capacity of the machines tested is about the same.

Prewashing

The *Bendix* and the *Laundromat* have provision for prewashing or soaking — a tumbling wash in lukewarm, soapy water, preliminary to the regular washing cycle. Since both machines shut off after the prewash, the operator has to go back to the machine after about ten minutes, start the regular washing cycle, and add a fresh batch of soap. The prewash is optional and may be omitted. But it is of some value for exceptionally dirty clothes, such as those that have dirt caked on them, or those that have stains which may be set by hot water. CU tried the prewashing with both the full and reduced loads, and found that, for normally dirty clothes, it didn't make for an appreciably cleaner wash.

The *Bendix* and the *Laundromat*, with both prewash and regular wash, did not produce as clean clothes as did the *Blackstone* without a prewash.

How long does it take?

In the *Blackstone*, *Bendix* and *Laundromat*, the length of time the clothes stay in the soapy water can be varied to permit short washing periods for clothes that are lightly soiled, easily damaged, or not colorfast. The

Blackstone can be set to run for $2\frac{1}{2}$ to 15 minutes; the *Bendix*, one to 15; and the *Laundromat*, one to 18. The timing mechanism on the *Laundromat* makes no provision for variation in the cycle; in order to wash clothes in this machine for a short time only, it is necessary to let the machine run empty until the required number of minutes of washing time are left, then stop the machine, by shutting off the power, load, and restart it. If you miss the right minute, you have to let the cycle run its course and start all over again.

Sometimes it may be desirable to change the timing after the machine has started. In the *Bendix* and *Laundromat*, this can be accomplished by moving the timing device ahead at any point throughout the entire cycle; but in the *Blackstone* it is possible to vary the time of the wash action only. The timing in the *Laundromat* cannot be varied at all.

Automatic washing machines spin-dry clothes by centrifugal action. CU calculated spin-drying efficiency by weighing the clothes as they were unloaded, then reweighing them after they had been dried. The amount of residual water did not vary much among the four machines tested. The range was from 46% water left in clothes washed in the *Laundromat*, to 51% for the *Bendix*. Since this is too much water to permit ironing the clothes without further drying, and since the range is too small to make much difference in drying time, none of the four machines offers an important advantage over the others in this respect.

Installation

The *Blackstone* and the *Laundromat* have the advantage that they do not have to be bolted down to prevent rocking and "walking" during the spinning operation; but the *Bendix* and the *Laundromat* have to be bolted either to the floor or to a concrete block. This is all very well if you install a washer in the basement of your own home, but it may offer difficulties in a kitchen installation, especially in an apartment.

Apartment dwellers should get the landlord's permission in writing before having a machine bolted to a kitchen floor. Under some leases, such improvements would automatically become the property of the owner. In any case, vibrations from a *Laundromat* or a *Bendix* installed above the basement may be seriously annoying, and may dislodge loose plaster around the machine.

If an unbalanced load, such as one small, heavy piece, is washed in the *Laundromat*, it may tend to "walk." The outer frame of the *Blackstone* vibrates very little. But the vibrations in the *Laundromat* and *Bendix*, if they are not correctly bolted down, have in some cases been strong enough to pull the bolts out of weak floors — even a three-inch concrete basement floor — and to pull

Laundromat (left) and Launderall (right) both cost about \$300, but Laundromat does not have to be bolted down, had better timing mechanism

out some flooring materials altogether. A concrete block as thick as eight inches may be required for proper installation. And it is a good idea to get a guarantee from the person who does the installing. The cost of a concrete block — about \$35 — is not included in the price of installation.

Make sure, before buying, that you know what the dealer means by "installed." The price of the machine, installed, may not include bringing in the necessary water and drain connections. If the washer is to be located more than about four feet from the connections, the installation may cost about \$10 to \$15.

Loading doors are located on the top of the *Blackstone* and the *Launderall*, so that opening the door during the wash or rinse cycle does not mean a flooded floor. The *Bendix* and *Laundromat* doors are located at the front, and if opened accidentally, water may escape. This isn't the sort of accident that is likely to happen very often. Still, it's something to keep in mind.

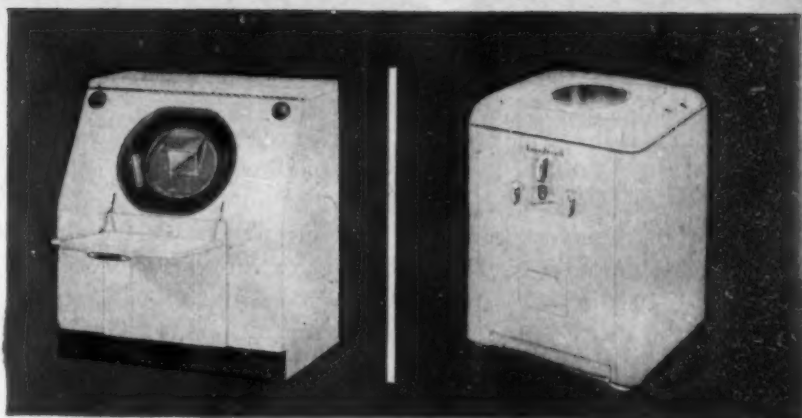
The *Laundromat* door and the tumbler tub are mounted at an angle inclined sixty degrees from the horizontal, and the inclined mounting appeared to be responsible for tangling the clothes. The combination of up-and-down and back-and-forth motions to which the slanted tub subjects the clothes, may leave sheets and shirt sleeves twisted up like so much rope.

Hot water consumption

If your hot water supply is limited, and if you are likely to wash several loads in one day, you will want to check hot water consumption carefully. Besides cold water, the *Bendix* takes about ten gallons of hot water per run; the *Laundromat*, about 13; the *Launderall*, about 16; and the *Blackstone*, about 18. These are the amounts used for hot washing and for rinsing. The machines tested use about two-thirds as much hot water when set to wash delicate and colored fabrics in warm water.

The average home hot-water tank for one family has

Thor (left) cleaned as well as Easy (right), another non-automatic spinner-drier, but Thor required no handling of clothes between loading and rinse



a 30-gallon capacity; if several washings are to be run, the tank should be full of hot water before the first washing is started. For best results, the water should be between 140° and 170° Fahrenheit.

Rinsing

CU found no significant differences in rinsing efficiency among the four automatic machines tested. Relative rinsing efficiency was determined by tests for residual soap.

There were three different types of rinse baths used in varying combinations in the rinsing cycle: a spray rinse, a deep rinse, and an overflow rinse. A spray rinse consists of a stream of water — about a gallon of it — which runs out as soon as it enters the tub. A deep rinse is a tubful of water in which the clothes are agitated for about a minute, after which time the water is run off. An overflow rinse consists of a continuous rinse in which the tub is full of water, the clothes are agitated, and the water is fed in continuously, the excess running off at the top with the loose dirt.

Bleaching, bluing and starching solutions could be added to the clothes in each of the machines tested, but should be added in accordance with instructions.

The power consumption ranged from 0.17 kilowatt-hour for the *Bendix*, to 0.27 kilowatt-hour per run for the *Blackstone*. At 4¢ per kilowatt-hour, operating the machines cost from 0.7¢ to 1.1¢ per wash.

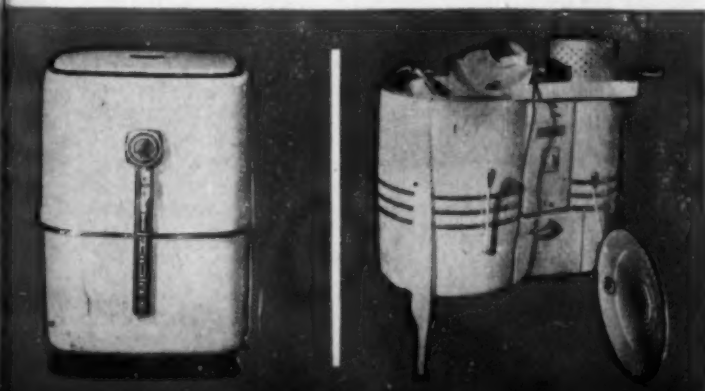
The Thor Automagic

The *Thor* is a non-automatic washing machine for which either or both of two tubs can be purchased — one for washing and spin-drying clothes, the other for washing dishes. Thus far, CU has tried it out on clothes only, and its clothes-washing ability proved to be better than that of any of the automatics discussed above, while its spinning was found to be just as effective as that of the automatics.

The *Thor's* washing, rinsing and spinning are all performed in the same tub. As with all non-automatic washers, the user must operate the water valves and the switches for changing operations.

Which machine?

Before deciding on a particular machine, consider whether one of the cheaper non-automatics will serve



you. If it will, compare the *Thor*, described below, with the machines described in the February Reports.

At that time CU rated 18 non-automatic machines: two spinner-driers, and 16 wringer-types. Of these, the spinner-driers offered the greater safety and convenience, but only one, the *Easy* 18SS46 at \$169.95, could be rated "Acceptable." In cleaning ability, the *Easy* and *Thor* were comparable; but in the *Easy*, clothes had to be transferred from wash to rinse when they were wet and very heavy. Two wringer-type machines were

rated "Not Acceptable"; those heading the "Acceptable" list were the *Norge* W17PA at \$113.95 without pump and the *Blackstone* 130AP at \$119.95 without pump. These prices may have gone up since.

If you decide on an automatic, the choice among *Bendix*, *Blackstone*, *Laundromat*, and *Launderall* is — much more than is usually the case — a matter of your particular needs and circumstances. The price range from the most expensive (*Blackstone*) to the least expensive (*Bendix*) is a wide one — \$105.

TENTATIVE RATINGS OF FOUR AUTOMATIC AND ONE SEMI-AUTOMATIC WASHING MACHINE

The following ratings are tentative, pending complete returns on CU's tests for wear on the machines and on clothes. Water consumption figures given below are average volumes used by the

machines tested, with setting at "hot" and without prewash. Dimensions are for over-all width, depth and height, respectively, but do not allow for rear water connections.

TENTATIVELY ACCEPTABLE

Automatic washers

□ **BLACKSTONE** Model 50A (Blackstone Corp., Jamestown, N. Y.). \$285. Model 50A no longer available. Replaced by Model 150 at \$345. Model 150 appeared to be identical with Model 50A except that front panel was hinged.

The Blackstone got clothes cleaner than the other three automatic machines tested, and, because it does not have to be bolted down, it presents no installation problems. But the model now available, selling at \$345, is \$45 higher than the next machine in line of quality, the Laundromat. It also used more hot water than the other machines. If these factors are not objectionable, the Blackstone would be the best choice among the automatics.

Manufacturer's rated capacity 8 lb. Agitator-type washer; cleaning ability above average of automatic washers. Bolting to floor not required. Machine finished in enamel; tub of stainless steel; aluminum agitator. Hot water consumption, 18 gal.; cold, 16 gal. Water temperature control by manual setting of valves. Time of wash action could be varied from 2½ to 15 min.; rest of cycle invariable; one run 25 to 38 min. No prewash. One overflow rinse. Spun-dry clothes contained 48% water. Dimensions 25x25x36 in. A-c only.

□ **LAUNDROMAT** Model B-3-47 (Westinghouse Electric Corp., Laundry Equipment Div., Mansfield, Ohio). \$299.95. Model C-3-47, available at \$299.95, appeared to be identical with Model B-3-47, except that control dials were different and the timing of the last spray rinse was different.

The Laundromat, Bendix and Launderall cleaned clothes equally well. But the Laundromat does not have to be bolted down. On the minus side, you may find the tangling of clothes in this machine very annoying.

Manufacturer's rated capacity 9 lb. clothes. Tumbler-type washer; cleaning ability below average. Bolting to floor not required. Machine finished in enamel; tumbler had porcelain finish. Tangled clothes more than other machines tested. Convenient,

hinged loading tray. Hot water consumption, 13 gal.; cold, 5 gal. (16 gal. hot and 8, cold, including prewash). Five temperature settings ranging from hot to cool. Time of wash action variable from 1 to 18 min.; timing of entire cycle could be advanced manually; one run 22 to 39 min. (not including prewash). Tumbling prewash optional. Three rinses — a spray rinse, a deep rinse, and another spray rinse. Spun-dry clothes contained 46% water. Dimensions 31x27x36 in. (with loading tray down, 31x44x36 in.). A-c only.

□ **BENDIX** Standard Model (Bendix Home Appliances, Inc., South Bend, Ind.). \$239.50 installed. De-Luxe Model at \$259.50 appeared to be identical with Standard Model except that housing was larger and flat-topped.

The Bendix costs \$105 less than the Blackstone; it is the least expensive of the automatic machines tested. But it does have to be bolted down, and often on a cement block (see report). Installing the block costs about \$35. If the machine can be bolted down properly without a block, the Bendix may prove to be a good choice; even with the block, it is about \$25 cheaper than the Laundromat or Launderall.

Manufacturer's rated capacity 9 lb. clothes. Tumbler-type washer; cleaning ability below average. Machine must be bolted to floor. Machine finished in porcelain and enamel; tumbler had porcelain finish. Hot water consumption, 10 gal.; cold, 9 gal. (12 gal. hot and 11, cold, including prewash). Time of wash action variable from 1 to 15 min.; timing of entire cycle could be advanced manually; one run 22 to 36 min. (not including prewash). Tumbling prewash optional. One spray rinse and 2 deep rinses. Very small pieces (such as children's socks) occasionally floated out of tumbler and were caught in drain screen. Spun-dry clothes contained 51% water. Dimensions 25x23x35 in. A-c only.

□ **LAUNDERALL** Model L51 (F. L. Jacobs Co., Detroit). \$299.50.

The Launderall has to be bolted down, and does not have some of the advantages of the other machine in the same price bracket — the Laundromat. Timing of the

washing operation, for example, is not continuously variable.

Manufacturer's rated capacity 10 lb. clothes. Tumbler-type washer, with reversing action; cleaning ability below average (but see story). Machine must be bolted to floor. Machine finished in enamel; tumbler aluminum. Door of tumbler required some effort to line up with outer door for unloading. Two temperature settings, hot and warm. Time of one run 40 min., not variable. No prewash. Two deep rinses. Automatic valves on test sample did not deliver required volume of water. Machine stopped if door was opened at any time during cycle. Thermal overload cut-out in motor. Spun-dry clothes contained 49% water. Dimensions 25x25x36 in. A-c or d-c must be specified in ordering.

Semi-automatic

□ **THOR** AUTOMATIC WASHER Model 200C (Hurley Machine Div., Electric Household Utilities Corp., Chicago). \$199.50. Model 200C no longer available. Replaced by Model 222 at \$199.50, which appeared to be identical with Model 200C except that control is mechanical instead of electrical. Tub for dishwashing available at extra cost (\$69.95). Also available built-in in a kitchen sink, as *Thor Automatic Sink* Model 250 CD at \$389.50, which includes sink, dishwasher and clothes washer.

The Thor got clothes cleaner than any of the automatic machines tested did. And, because clothes do not have to be handled between the initial loading and final rinsing, it is much more convenient to use than other non-automatic, spinner-type machines which CU has so far tested.

Manufacturer's rated capacity 8 lb. Tub capacity, 10 gal. Agitator-type washer; cleaning ability above average. Did not require bolting to floor. Machine finished in enamel; tumbler had porcelain finish; plastic agitator. Washing and spin-drying in the same tub, requiring no handling of clothes from start to finish. Number and length of washings, rinsings and spinnings entirely optional, non-automatic. Spun-dry clothes contained 46% water. Dimensions 24x26x36 in. A-c only.

SHOES AND THE CHILD

Children outgrow and wear out shoes with astonishing rapidity, but proper fit remains the chief factor. CU has rated 18 brands and has something to say about buying them

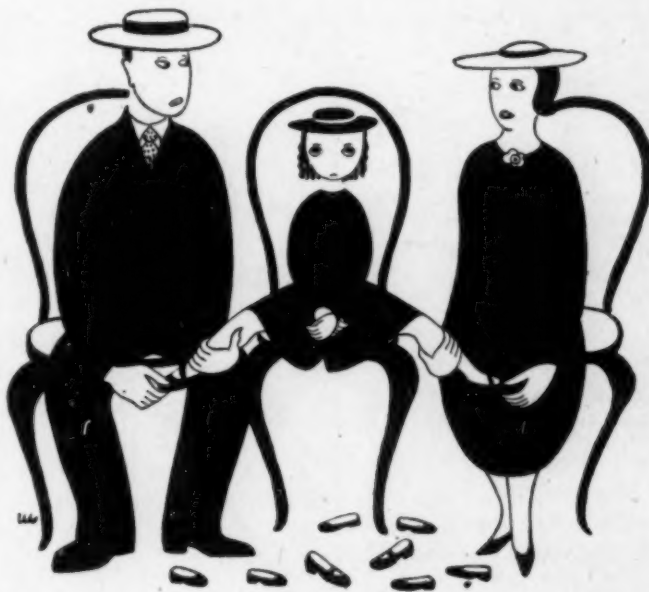
Five factors should influence your selection of shoes for your children: fit, style as related to fit, workmanship, materials and price. So closely related are these factors that brand ratings must be supplemented by sound judgment on the parents' part when making the actual selection. Specifically, the selecting should be done at a store where there is a wide choice of lengths, widths and lasts, and where the services of a competent fitter will be regularly available to you.

Even a well-built shoe, if it's poorly fitted, will not wear long. But shoe fitting has its medical as well as its clothing aspects; ill-fitting shoes can affect your child's posture, walking habits and bone structure.

To provide data for shoe selection, CU tested 54 pairs of shoes — three pairs each of 18 brands. No "Best Buy" was found. In a few cases, substantial variations were noted from pair to pair of supposedly identical shoes. While price proved far from an infallible guide to quality, the more expensive shoes were in general found superior to the cheaper brands. Prices have increased since 1943, when CU last tested and reported on children's shoes, but the increase appeared rather less than on most clothing items. All things considered, CU recommends that while you should avoid shoes exhibiting shoddy materials or workmanship, you should place major emphasis on securing shoes that have the best possible fit.

How to have children's shoes fitted

Take your child with you when buying his shoes, just as you would when having glasses fitted. Unfortunately, it is impossible to buy *Ward's* or *Sears'* catalog shoes in their retail stores. Buying shoes from mail-order catalogs, despite the fact that both *Ward's* and *Sears'*



shoes rated well in relation to price, is likely to prove unsatisfactory. If you do buy mail-order shoes, return them as many times as necessary to get a good fit.

If at all possible, shop for children's shoes during lull hours, when neither you nor the fitter is hurried. If possible, find a fitter who knows his business, and stick to him.

Have your child wear an old pair of shoes to the fitting, so that both you

and the fitter can see just how they have worn, and can make your selection in the light of past experience.

Scientific fitting instruments are important but not indispensable. Foot X-ray machines, for example, are helpful in establishing the right relationship of the shoe to the bone structure of the foot, but they do not show the fleshy tissue, which must also be considered. A good shoe store will have a special instrument for measuring width as well as length from ball to heel not just a measuring stick for determining length from toe to heel. But sound judgment is as important as elaborate mechanisms for fitting shoe to foot.

Be sure the feet are measured while the child is standing with full weight on his foot because feet spread when bearing weight. For accurate measurement, spread out the stocking and be sure the toes are not curled up.

After measurement, try on *both* shoes. While the left foot is usually slightly larger than the right, individual variations between left and right are frequent.

Lace the shoe up normally; a laced shoe with five or six eyelets is best for children. The laces should be able to bring the two sides evenly over the instep when drawn firmly but not tightly. The instep should not be constricted, and the shoe should not gape.

Now feel for the large toe through the upper; it should be about $\frac{3}{4}$ of an inch from the tip. Try to pinch the

CARE AND REPAIR OF CHILDREN'S SHOES

Most children are far harder on shoes than the average adult. They run more, scuff the tips more, and have a greater tendency to step into the middle of water puddles. Hence proper care, and prompt repair, are especially important.

Keep them shined

Shoes should be shined the day you buy them, before they are worn. And they should be kept shined thereafter. Even if appearance is unimportant, the polish preserves the leather and extends the life of the shoe.

Keep them dry

When shoes become wet, see that they are fully dried before they are worn again. Pack them with newspapers (but not so tightly as to distort the shape) during the drying period. Don't dry them next to the radiator, in direct sunlight, or too near any other source of heat. Don't put them to dry in a damp, dark cellar either; mildew may result. When they're fully dry, polish them before they are worn again.

... and in good repair

Have shoes repaired as soon as a failure appears; one more day's wear and the damage may be too great for satisfactory mending.

But consider carefully whether the shoes are worth repairing at present repair prices. Shoes are outgrown when the child's big toe is about one-quarter inch from the shoe tip; if the toe is approaching that point, you'll have to buy new shoes soon anyway. And don't repair shoes with badly torn linings; the lining repairs may alter the size and make the shoe useless.

Full soles and half

Full soles, though more expensive, are better than half soles. Half soles have a tendency to place too great a strain on the shank, which may break. Have the soles sewn, not nailed; sewing makes a more flexible sole.

Even if one part of the sole or heel wears more rapidly than the rest, don't let the repair shop "build it up" more than a new shoe is built up; it will act like a badly fitted shoe to throw the child's walk and posture out of line.

Some repair shops do the work with the shoe on a last. While such shops may charge more, the repair job done on a last is less likely to change the inner dimensions of the shoe, and hence may be worth the difference. In any event, make sure the shoe fits after the repair work is done.

leather at the vamp; the shoe should be loose enough so that you can grasp a small fold of leather between thumb and forefinger. The widest part of the shoe should fit over the joints of the big and small toes. The seat of the heel must be wide enough to support the full width of the child's heel when it is bearing his weight.

Place a straight edge or ruler along the inside edge of the shoe. The heel and front areas should lie along as straight a line as possible.

If satisfied on these points, have your child walk around for several minutes before you make a final decision. Check in particular to see that the back of the shoe fits snugly, without slipping or riding up and down.

Weight of shoe should also be considered. Shoes that are too heavy place too great a strain on the leg and foot muscles of a growing child.

High shoes are not necessary for the normal child. A high shoe, tightly laced, has somewhat the same effect as a splint, and splinting may weaken muscles which require exercise for strength and health. High shoes are called for only when the ankle is abnormal, or weakened by injury or disease. In such cases, as in all cases requiring special care, it is wisest to consult a qualified physician or orthopedic specialist before making a choice of shoes.

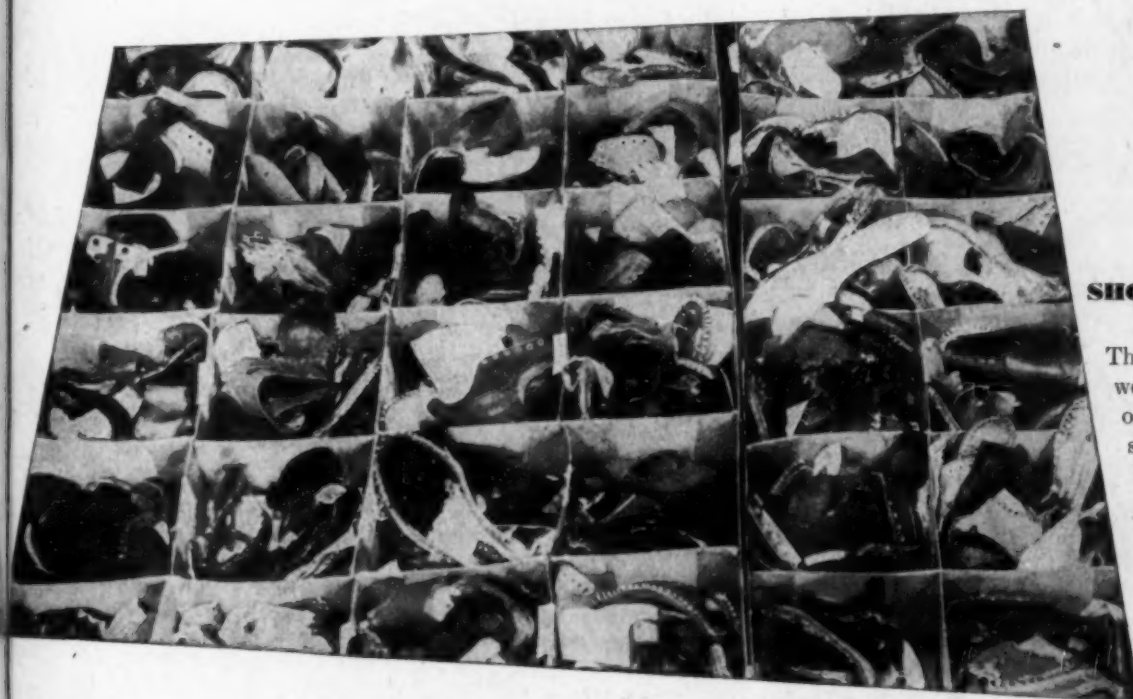
The same considerations should govern the purchase of shoes with special heels, arches, arch supports, or other orthopedic features; don't rely for medical advice on a shoe salesman.

Finally, be sure your children's stockings fit as well as their shoes. Stockings too short will curl up the toes; stockings too big will wrinkle and chafe. When purchased, stockings should be about one-half inch longer than the foot.

When to buy shoes

At least until the age of six, most children outgrow their shoes before they wear them out. And since many children will not complain of tight shoes until the pain is severe, it is wise to check up on shoe fit at regular intervals, and to examine feet and toes at bath time for soreness or chafing. If your child is one of those who wear shoes out instead of outgrowing them, give some careful attention to "Care and Repair of Children's Shoes," on this page.

But *don't* try to economize by saving Johnnie's shoes for Jerry to wear when he grows into them. Both children's feet and children's shoes are malleable; each takes in part the shape of the other. Putting a younger child's foot into a shoe already shaped by previous wear will



SHOES IN THE RAW

Three pairs each of 18 brands were ripped up in CU's lab in order to examine counters, shanks, welts, inner soles, linings, stays, stitchings

almost certainly produce a bad fit and resulting foot trouble.

It is poor economy to buy two pairs of children's shoes at a time, or to save one pair for dress and use one pair for everyday. The dress shoes are released for everyday wear just about when they are outgrown and potential trouble-makers. A much better plan, when your child is old enough to stay up evenings, is to assign one pair for daytime use and one for dinnertime and later, so that both pairs can dry properly between wearings. The same advantage can be achieved by wearing different pairs on alternate days.

Construction, materials and price

As a guide to shoe durability, CU examined 18 points of construction and materials in four crucial areas on each pair tested. Primary emphasis was placed on these ten features — counters, shanks, welts, heel lifts and heel pads, inner soles, linings and quarter linings, back stays, and tongue stitchings. Materials were judged with respect to wearability of soles, quality of the counter which holds the back of the shoe in shape, strength of the leather used in the uppers, and scuff resistance of the tip.

Ratings were complicated by the fact that, in 13 of the 18 brands tested, lack of uniformity was noted among shoes bearing identical brand names and style

numbers. The *Macy Gro Shoe*, an extreme example, exhibited differences among three pairs with respect to heel pads, type of shank, eyelets, back stays, tongue stitchings, interlinings, and even, for that matter, in external appearance.

The *Pollyanna* showed differences in heel lift, shank and counter; the *Coward* in back stay, counter and tip stitching. Such variability negates the chief advantage which the consumer should expect in buying by brand name — uniformity of product.

The major difference in materials was between composition and leather soles. Wearability of soles was formerly tested by abrasion tests, but Bureau of Standards wartime research showed that such tests correlated very poorly with actual durability, and that tests of indentation or resistance to compression were a better guide. Reliable research reports provide evidence that *Neolite* and other good composition soles will outwear soles made of leather.

Against composition soles it has been argued that they are less porous and hence impede evaporation of foot moisture. Research to date neither proves nor disproves the importance of this factor, especially since the inner sole and other shoe bottom constituents may cut down the porosity of shoes with leather soles. CU, accordingly, recommends good composition soles such as *Neolite* on the basis of their greater durability, unless

your child happens to find them less comfortable than the leather.

Quality and price

No single brand was found to be consistently excellent, or even good, in all material and construction respects. The best brand, *Pediforme*, was also one of the most expensive at \$8.50. Thereafter, quality by brand

tapered off gradually to the *National Stride-Well* at \$3.99, which was substantially inferior to the next lowest brand. The *Father-Son* at \$3.85, cheapest of the shoes rated, proved better than the *Pied Piper* at \$6.50. But all of the eight best brands (out of the 18 covered in the tests) cost over \$6 — with the exception of the *Ward's* and *Sears'* mail-order brands at \$4.50 and \$4.75 (plus postage), respectively.

RATINGS OF 18 BRANDS OF CHILDREN'S SHOES

In most cases, CU tested size 2D or size 3D. The prices given below would probably hold true for shoes from sizes 8 to 13, and

from 1 to 3. Three pairs of each of the brands listed below were tested on 18 points related to construction and materials.

ACCEPTABLE

In estimated order of over-all quality.

■ **PEDIFORME** Style No. 414 (Pediforme Shoe Co., NYC). \$8.50. Construction: good. Material: good. Resistance to scuffing: fair. Poor leather counters. Leather quarter linings. Leather heel pads. Leather soles.

■ **OFFICIAL BOY SCOUT SHOE** Style No. 936 (Gerberich-Payne Shoe Co., Mt. Joy, Pa.). Wards Cat. No. — 5780. \$6.95 postpaid. Construction: good. Material: generally excellent. Resistance to scuffing: good. Poor paper counters. Leather quarter linings. Paper heel pads. Leather soles.

■ **MACY'S GRO SHOE** Style No. 281 (R. H. Macy & Co., NYC). \$6.98 and \$6.29; despite the same style number, two entirely different constructions were found. Construction: good. Material: variable from good to poor. Resistance to scuffing: variable from good to poor. Good leather counters. Leather quarter linings. Two leather heel pads, one paper heel pad. One pair had no back stays. Leather soles.

■ **WARDS** Cat. No. — 5504 (Montgomery Ward). \$4.50 plus postage. Construction: good. Materials: generally good. Resistance to scuffing: good. Paper counters: variable from good to poor. Leather quarter linings. Leather heel pads. Leather soles.

■ **INDIAN-WALK** Style No. 332 (Foot Form Shoe Shops, Inc., NYC). \$8.55. Construction: good. Material: variable from good to fair. Resistance to scuffing: varied from fair to poor. Poor leather counters. Leather quarter linings. Heel pads: variable leather and paper. Leather soles.

■ **KALI-STEN-IKS** Style No. 810 (Gilbert Shoe Co., Thiensville, Wis.). \$7 and \$6.75. Construction: excellent. Material: generally poor. Resistance to scuffing: poor. Leather counters: variable from good to poor. Leather quarter linings. Leather heel pads. Leather soles.

■ **SEARS BILTWEEL** Cat. No. — 1055 (Sears-Roebuck). \$4.75 plus postage. Construction: fair. Material: generally excellent. Resistance to scuffing: good. Poor paper counters. Leather quarter lining; leatherette heel pads. Composition soles.

■ **COWARD** Style No. 4435 (Coward Shoe, Inc., NYC). \$6.95. The 3 pairs tested varied. Construction: variable from good to fair. Material: variable from good to fair. Resistance to scuffing: variable from good to poor. Leather counters: variable from good to poor. Leather quarter lining. Leather heel pads. One pair had no back stays. Leather soles. Not the same as *Coward Flex-Wear Sole* listed below.

■ **THOM McAN** Style No. X29 (Thom McAn Shoe Stores). \$4.39. Construction: fair. Material: generally excellent. Resistance to scuffing: good. Poor paper counters. Leatherette and canvas quarter linings. Paper heel pads. Leather soles.

■ **COWARD FLEX-WEAR SOLE** Style No. 32E26 (Coward Shoe, Inc.). \$4.45. Construction: variable from good to fair. Material: fair. Resistance to scuffing: poor. Leather counters: variable from good to poor. Leather quarter linings. Leather heel pads. No back stays. Leather soles.

■ **KINNASEPTIC EDUCATOR** Style No. 3493 (G. R. Kinney Co., NYC). \$4.50. Construction: fair. Material: generally excellent. Resistance to scuffing: good. Poor paper counters. Leather quarter linings. Leather heel pads. No back stays. *Panolene* composition soles.

■ **FATHER-SON** Style No. 172 (Father & Son Shoe Stores, Inc.). \$3.85. Construction: fair. Material: generally excellent. Resistance to scuffing: variable from good to fair. Poor paper counters. Leather and canvas quarter linings. Leather heel pads. *Neolite* soles.

■ **MACY'S SUPRE-MACY** Style No. 281-60 (R. H. Macy & Co.). \$4.19. Construction: variable from good to fair. Material: variable from good to fair. Resistance to scuffing: poor. Leather counters: variable from good to poor. Leather quarter linings. Leather heel pads. No back stays. *Neolite* soles.

■ **PIED PIPER** Style No. 3334 (Pied Piper Shoe Co., Wausau, Wis.). \$6.50. Construction: fair. Material: variable from good to fair. Resistance to scuffing: poor. Poor paper counters. Leather quarter linings. Heel pads: 2 pairs leatherette, 1 pair paper. Leather soles.

■ **CLASSMATE** Style No. 2150 (Ideal Shoe Mfg. Co., Milwaukee). \$5.95. Construction: fair. Material: generally good. Resistance to scuffing: fair. Counters: varied from good leather to poor paper. Leather quarter linings. Leatherette heel pads. No back stays. Leather soles.

■ **POLLYANNA HEALTH SHOE** Style No. 8833 (A. S. Kreidler Co., Annville, Pa.). \$5. Construction: poor. Material: generally excellent. Resistance to scuffing: good. Counters: varied from poor leather to poor paper. Leatherette quarter linings. Paper heel pads. No back stays. Leather soles.

■ **BUSTER BROWN** Style No. G811 (Brown Shoe Co., St. Louis). \$5.98. Construction: fair. Material: fair. Resistance to scuffing: poor. Poor paper counters. Leather quarter linings. Leather heel pads. No back stays. Leather soles.

■ **NATIONAL'S STRIDE-WELL** Style No. 2770 (National Shoe Stores). \$3.99. Construction: poor. Material: variable from good to fair. Resistance to scuffing: poor. Poor paper counters. Leather quarter linings. Paper heel pads. No back stays. *Neolite* soles.

there ought to be a law

"The vital importance of foot health and its direct relation to general body health is now receiving the attention of health educators. The adoption by Massachusetts of a law making it mandatory that school children's feet be given the same regular examination and care as their teeth is a move that seems likely to be followed shortly by other states." — Edward L. Compere, in *Hygeia*, May, 1947



Except for three headlights, the *Tucker* looks conventional. But beneath the hood there's space for storing away luggage



The six-cylinder, 150 horse-power, aluminum engine is at rear. Car is about as big as *Cadillac*, weighs as much as *Chevrolet*

the Tucker car

CU's consultant looks over the *Tucker* and finds it interesting — but it is a long way from production

A person who hadn't seen a car since the auto show of 1907 would find only one obvious fundamental difference in chassis construction in the cars made since that time — knee action. But now comes the 1948 *Tucker*, rear-engined, minus rear axle, minus clutch, minus transmission, and minus differential; in comparison with it, even Kaiser's projected but unproduced front-wheel-drive car would appear stodgy indeed.

A handmade model of the *Tucker* four-door sedan was being exhibited in key cities during the summer, but very little in the way of specifications or mechanical details was available. The price being quoted was \$1850, FOB, Chicago. What the price turns out to be when production finally starts, remains to be seen. What the car actually turns out to be also remains to be seen. The history of the company to date has been marked by much internal dissension, with charges and counter charges passed back and forth on the subject of the car's financing and engineering, both of which may undergo changes in months to come. But if the car actually produced is like the model, it will be extremely unconventional in many respects.

What it looks like

The *Tucker* is a large car — its wheelbase and over-all length are very close to those of the standard *Cadillac*. The front and rear tread (width between wheels) is about two inches greater, but over-all, the *Tucker* is more than four inches narrower. Its over-all height is given by *Automotive Industries* as 60½ inches when the car is loaded. The weight, according to company publicity, is about 3000 pounds — approximately equal to that of the *Chevrolet*.

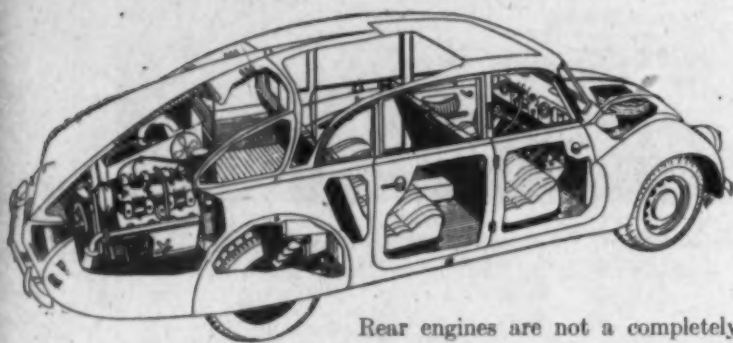
The handmade body currently being exhibited is a rather conventional looking four-door sedan, with front fenders faired into the doors as they are in the present General Motors cars, and with a rather long and flat rear over-hang, only partly necessary for covering the rear engine. The "hood," which becomes a lid for the luggage compartment, has a decided downward slant, and, although only Conover models were allowed in the car during the New York showing, forward vision appears to be better than average. Rear vision, through an almost horizontal window, looks poor, and would probably be nil after five minutes in a snowstorm.

The height of the "instrument panel" seems about average, but it carries no instruments; it is, in fact, a two-inch crash pad of foam rubber. The speedometer is framed just above the steering column. As for the seats, they look far too low for comfort, and the distance between front and rear seats appears rather short. The baggage space under the "hood" in front is also less than normal. The car floor is flat.

The chassis is very strongly braced at the front, partly to make up for the lack of "protection" commonly supposed to be afforded by the engine in front-engine cars. Both front and rear wheels are independently mounted, a feature which was to have appeared also on the *Kaiser* and the *Willys* 75. The "springs" are a proprietary make, utilizing rubber instead of steel. A third unorthodox feature has to do with the geometry of this system; as the wheels rise and fall, the tread changes.

Full details on the brakes are lacking, but they are in the form of discs, built like a clutch rather than in the more usual form of shoes operating in drums. The brakes are applied hydraulically.

REAR-ENGINE CARS



Rear engines are not a completely new departure. Czech *Tatra* (above) has been rear-engined since 1890's



Many busses — *Mack* and *General Motors* among others — have also used the rear-engine principle for many years



The *Scarab* is an experimental, rear-engined car designed by Stout in Chicago. The 1947 model is shown above

Details such as these represent changes that are forward-looking but not wholly revolutionary. The *Tucker* engine and drive, however, are completely so. Like the *Duesenberg* car of some 20 years ago, the *Tucker* is apparently intended to be a car which will cling to the road and ride comfortably at very high speeds, and one that will be long lived, in spite of being driven at those speeds. But to survive in the market, such a car must be competitively priced. The *Duesenberg* was not.

The *Tucker* makers have met the price problem in part by mounting a flat, six-cylinder engine (two banks of three cylinders each) between the rear wheels and by connecting each end of the crankshaft to a driving wheel by means of a hydraulic torque converter — an arrangement that eliminates clutch, transmission, and differential.

The torque converter

The key component of this system, the torque converter, is also the biggest technical question-mark in the *Tucker's* ultra-novel powerplant. A hydraulic torque converter is a variety of "fluid flywheel," capable of replacing the conventional clutch and transmission gears (the most advanced systems still have both, although they may operate automatically). Few details concerning the converters used in the *Tucker* have been released. Hundreds of hydraulic torque converters are used in busses; but the requirements for use in the *Tucker*, as Mr. Tucker apparently plans to use them, are radically different.

To meet these requirements, the *Tucker* engine has a tremendous piston displacement or breathing capacity (twice that of a *Packard 120*, for instance), with cylinders of a five-inch bore and stroke. The engine runs at very slow speeds, delivering its maximum of 150 hp at about half the normal peak revolutions per minute. An engine of this size would be prohibitively heavy if conventionally made.

The *Tucker* engine is to be largely aluminum, the cylinders sprayed inside with a bronze alloy and diamond-bored. Valves will be operated hydraulically instead of by cams. Fuel will be injected instead of carburetor-fed. High-frequency ignition is used and the powerful 24-volt electrical system will come in handy for cranking the huge engine. A completely sealed cooling system will pump *Prestone* or some similar coolant through radiators located, vulnerably, at the extreme front of the car.

With only a few handmade cars in existence, it is too early to pass judgment on the *Tucker's* value — also, of course, at this stage its features are decidedly subject to change. Right now the car would hardly appear to be the type for a mass market. But if the *Tucker's* present radical design ever gets into production, it might well have a vitalizing, or at least an accelerating, effect upon the entire automobile industry.

SLIP COVERS FOR YOUR CAR

MEASURE BEFORE YOU BUY: 17 OUT OF 54

"UNIVERSALS" FAILED TO FIT TEST CARS

Like the fashion world, the automobile seat cover business has its own style setup. If a motorist craves individual high styling — and can afford it — he may order specially designed covers, known as "tailor mades," which cling tautly and also satisfy his whims as to color, materials and monogramming. This is the luxury fringe of the business, and while a single order may run to a heavy sum the over-all volume is small.

Below this stratum is the better grade of ready-to-wear. Although somewhat misleadingly called "custom-made," the covers are factory-produced to conform to one car or to a few models with similarly shaped seats and back rests.

Cheaper and far more popular are the "universals," which constitute the backbone of seat cover sales. Since a universal is cut for a large number of models of different makes, it doesn't fit any one car exactly and must be altered after purchase. An easy way to distinguish a universal is that it uses elastic, which is not found in a custom-made cover.

Whether covers are embroidered with the family crest for a 1947 Cadillac or bought to hide cigaret burns in a 1936 Ford, the fit is all-important, not only as an esthetic measure, but because the better-fitting covers last longer. On this count, sets employing drawstrings are by and large not so satisfactory as those equipped with hog rings (special staples), tacks and pins.

Having seat covers fitted

Unfortunately, home fitting of seat covers is no simple task. A novice lacks the special pliers used by professionals; he will usually discover half-way through that



"Universal" seat covers are usually made of one of the three materials shown above. In CU's tests, paper fiber wore the best, was the smoothest, the coolest, and, when lacquered, the easiest to clean. But it is weak when wet. Sailcloth wore better than cotton fiber, but was hard to clean and hard to slide across. Cotton fiber, generally the cheapest, showed poorest resistance to rubbing, was midway between sailcloth and paper fiber in smoothness and cleanability.

his set doesn't contain enough hog rings and that extras are hard to obtain; and, even though he apes the experts' trick of dampening the covers before applying, he will probably run into difficulties manipulating the cloth.

It is wise to hire a professional. Auto accessory stores are usually glad to recommend one, or, better yet, in some large cities there has emerged a new kind of specialist, a man whose sole occupation is attaching seat covers. In the New York area the cost of his services ranges from \$3 to \$5 for a job.

Although universal seat covers are intended for specific groups of makes and models, the labels are not too trustworthy. Consumers Union, which confined its testing to universals, bought 54 covers, each represented as fitting one or another of three sedan models — a 1947 two-door Ford, a 1941 two-door Studebaker or a 1938 four-door Oldsmobile. Seventeen covers, almost one-third of the total, didn't give a satisfactory fit. A car owner should measure the dimensions of the prospective seat covers against his car seats.

Paper, cotton, and sailcloth

The seats and back rests of universals are usually made in one of three materials: paper fiber (known in the trade as wood fiber); cotton fiber; and sailcloth. Paper fiber showed the greatest resistance to abrasion in tests; it is smoothest, coolest and —when lacquered

— easiest to clean. Next in abrasive resistance came sailcloth, which of the three stains most easily, is hardest to clean and most difficult to slide across. Cotton fiber showed the poorest resistance to continual rubbing, but is smoother and easier to clean than sailcloth and generally runs slightly cheaper than the other two.

While paper fiber seat covers are strong when dry, they become weak when wet. Therefore they should not be subjected to strain while wet. Remember this if your car is a convertible which may be left out in the rain with the top down.

How CU tested

On all of the covers, CU first of all made a "crock" test, which can be duplicated by the buyer. Cover your index finger with a piece of white cloth, rub it back and forth on the fabric about 10 times each way (CU used a standard pressure of two pounds). Use the cloth both wet and dry.

In the group tested by CU, 25 of the 54 covers stained the white cloth and were consequently rated "Not Acceptable." Seat covers which survived the crock test were also evaluated for tensile strength, resistance to abrasion, resistance to fading in sunlight and for various construction features. From these tests CU technicians developed the ratings that follow and also the checklist to guide motorists in buying covers, given at the top of the next page.

RATINGS OF 54 MODELS OF "UNIVERSAL" SEAT COVERS

All "Acceptable" covers passed the "crock" test (see report). Since crocking varies with the particular dye, test for this defect before buying. The covers have been classified according to material and, within each group, are listed in order of quality. In some brands, the style or stock number shows the cars for which the set of covers

was made. If your car is not in this group, ask for the corresponding number that fits your car. In several cases, seat covers of different fabrics and colors, but made by the same manufacturer, were rated differently. The numbers of models tested by CU are given in italics in the ratings that follow.

ACCEPTABLE

Wood fiber (paper fiber) covers

■ SURE-FIT Royal-Tex (Howard Zink Corp., Fremont, Ohio). \$16.95. Avail. Scranton, Pa.; Rochester & NYC.

Stock No. 9838. Lacquered; drawstring construction; leatherette facing on seats and back rests of front and back seats; cloth piping; back rest of back seat was cut to conform to shape of seat; shirred elastic gussets on back seat.

Stock No. 9848. Lacquered; drawstring construction; leatherette facing on back rests of front and back seats; cloth piping; back rest of back seat was cut to conform to shape of seat; apron faded in artificial sunlight test.

■ SMARTCRAFT (Manufacturer unknown, sold in Strauss stores). \$17.95. Avail. Conn., N. Y.

Group F DC 4X-2. Lacquered; leatherette facing on seats and back rests of front and back seats; leatherette piping; back seat and

back rest were cut to conform to shape of seat; apron faded in artificial sunlight test.

Group D S4-4. Not lacquered; leatherette facing on seats and back rests of front and back seats; leatherette piping; back rest of back seat was cut to conform to shape of seat.

■ ATLAS (Atlas Auto Seat Cover Co., NYC). \$14.95.

Group D 838. Lacquered leatherette facing on seats and back rests of front and back seats; leatherette piping; in one of two sets tested, back seat was cut to conform to shape of seat.

■ FIB-R-X (Manufacturer unknown, sold by Pep Boys). Avail. Pa., N. J., Del., Wash. D. C., and Calif.

Model No. YB 6073. \$14.95. Lacquered; Koroseal facing on seats and back rests of front and back seats; cotton cord piping; elastic gussets on back seat.

Group H 6076. \$13.95. Lacquered; Koroseal facing on seats and back rests of front and back seats; cloth piping.

■ GOODRICH No. F21-52 (B. F. Goodrich Co., Akron). \$14.50. Lacquered; drawstring construction; leatherette facing on back rests of front and back seats; one set tested.

■ CRAWFORD FIBERKLOTH No. 842 (Crawford Manufacturing Co., Richmond, Va.). \$17.95. Lacquered; drawstring construction; leatherette facing on back rests of front and back seats; apron faded in artificial sunlight test. One set tested. Back rest of back seat cut to conform with shape of seat.

Sailcloth covers

■ ATLAS Model D 930 (Atlas Auto Seat Cover Co.). \$14.95. Good quality sailcloth; leatherette facing on front and back seats; leatherette piping.

■ ALLSTATE Group E (Sears-Roebuck). \$14.50 plus postage.

Cat. No. 7214. Good quality sailcloth; drawstring construction; leatherette piping.

Cat. No. 7215. Good quality sailcloth;

CHECKLIST FOR BUYING "UNIVERSAL" SEAT COVERS

1. Measure the width of front and rear seat cushions about five inches from the front edge and select covers that match this dimension closely.

2. Check seams to make sure they are well-made and double sewn.

3. See that tabs and fastenings are securely anchored.

4. Make sure that elastic does not have to be strained over corners; a gusset in the rear cushion corner is bad.

... and if they're fiber

5. Make sure there is cloth skirting material all around

the fiber, since the fiber will pull apart rather easily if fastenings are anchored to it.

6. Unfold the back seat cushion cover and be sure the fiber conforms to the shape of the entire seat and is not eked out with the cheaper skirting material.

7. Favor fiber covers with three to four inches of leatherette at cushion edges or back rest tops. Leatherette is especially desirable for the tops of folding coach seats and on front cushion edges. It makes for more durable seams than does cloth.

8. Check the weave for short ends, knots and breaks, especially at points of strain.

drawstring construction; leatherette piping; shirred elastic gussets on back seat.

■ YACHT CLUB DeLuxe (Manufacturer unknown, sold in Strauss stores). \$15.95.

Group H Burgundy. Good quality sailcloth; drawstring construction; leatherette piping; shirred elastic gussets on back seat.

Model E. Good quality sailcloth; drawstring construction; leatherette piping; shirred elastic gussets on back seat.

■ HIGHLANDER Group 3 Maroon (Banner Mfg. Co., Brooklyn). \$14.98. Fair quality sailcloth; leatherette facing on front and back seats; leatherette piping. One set tested.

■ CUSTOMCRAFT DC 4X (Custom Craft Cover Corp., NYC). \$16.95. Poor quality sailcloth; leatherette facing on front and back seats; leatherette piping. One set tested.

■ CORONET KOOLRIDE (Manufacturer unknown, sold in Times Square stores, Brooklyn). \$13.95.

Group 2 Solid Blue. Poor quality sailcloth; leatherette facing on front and back seats; leatherette piping; material faded in artificial sunlight test. One set tested.

■ JOYRIDE (Manufacturer unknown, sold in Strauss stores).

Group 4 Blue. \$16.95. Poor quality sailcloth; leatherette facing on front and back seats; cotton cord piping; shirred elastic gussets on back seat.

LX Sedan. \$15.95. Poor quality sailcloth; leatherette facing on front and back seat; cloth piping.

Cotton fiber covers

■ GOODRICH (B. F. Goodrich Co.). \$14.50. No. F21-56. Fair quality cotton fiber; drawstring construction; leatherette facing on back seat; leatherette piping; back seat and back rest of back seat cut to conform to shape of seat; apron faded in artificial sunlight test.

No. F21-52. Fair quality cotton fiber; drawstring construction; leatherette facing on back rests of front and back seats; leatherette piping; back seat and back rest of back seat cut to conform to shape of seat.

■ WESTERN CLIPPER (Manufacturer unknown, sold in Western Auto Supply Co. stores). \$13.75. Avail. east of Col. except No. and So. Dakota.

Group H7 N5027. Lacquered; drawstring construction; good quality cotton fiber; shirred elastic gussets on back seat.

Group E7 N5044. Lacquered; drawstring construction; good quality cotton fiber; shirred elastic gussets on back seat; back seat was cut to conform to shape of seat.

■ PASADENA "COOL COMFORT" (Manufacturer unknown, sold in Strauss stores). \$12.95.

Group H. Good quality cotton fiber; drawstring construction; elastic gussets on back seat.

Group D. Good quality cotton fiber; drawstring construction; back rest of back seat cut to conform to shape of seat.

■ ATLAS (Atlas Auto Seat Cover Co.). \$11.95.

Group No. D 203. Poor quality cotton fiber; leatherette facing on front and back seats and back rests of front and back seats; leatherette piping; back seat cut to conform with shape of seat.

Model No. D 208. Poor quality cotton fiber; leatherette facing on front and back seats and back rests of front and back seats; leatherette piping.

NOT ACCEPTABLE

The following covers were rated "Not Acceptable" because they failed to pass the crock test. The listing is alphabetical. Model tested is given in italics.

■ CORONET HIGHLANDER (Hinson Manufacturing Co., Waterloo, Iowa).

13B Maroon. \$10.88. Sailcloth.

Group 2 Maroon. \$16.95. Cotton fiber.

403 445. \$17.95. Paper fiber.

■ CORONET KOOLRIDE (Banner Manufacturing Co., Brooklyn).

Group 2 Brown. \$14.95. Paper fiber.

13 B Maroon. \$10.88. Paper fiber.

■ CUSTOMCRAFT (Custom Craft Cover Corp., NYC).

S-4. \$16.95. Paper fiber.

DC 4 X-2. \$16.95. Paper fiber.

DC 4 X-2. \$12.95. Plastic-coated cloth.

S4-4. \$12.95. Plastic-coated cloth.

S4-4. \$16.95. Sailcloth.

■ FASHION KNIT (Abel Corp., Columbus, Ohio).

E and A 1110. \$10. Knitted cloth.

■ FIRESTONE IMPERIAL (Firestone Tire & Rubber Co., Akron).

Stock No. 3-C-7, Style No. 21, \$12.95. Cotton fiber.

■ FIRESTONE SUPER IMPERIAL (Firestone Tire & Rubber Co.).

Stock No. 3-C-28, Style No. 21. \$16.95. Paper fiber.

Stock No. 3-C-29, Style No. 22. \$16.95. Paper fiber.

Stock No. 3-C-29, Style No. 22. \$19.95. Cotton fiber.

■ FIB-R-TONE (Manufacturer unknown, sold at Pep Boys).

YB 6058. \$10.95. Cotton fiber.

3062. \$9.95. Cotton fiber.

■ GOODRICH (B. F. Goodrich Co.).

No. F21-56. \$14.50. Paper fiber.

■ GOODYEAR LOCK SEAM (Goodyear Tire & Rubber Co., Akron).

022-5638. \$16.95. Paper fiber.

■ GOODYEAR PLIO WEAVE (Goodyear Tire & Rubber Co.).

022-5938. \$16.95. Cotton fiber.

022-5948. \$16.95. Cotton fiber.

■ JOYRIDE (Manufacturer unknown, sold at Strauss stores).

Group No. 4 Blue. \$17.95. Paper fiber.

■ WESTERN HOLLYWOOD (Western Auto Supply Co.).

Group H. Cat. No. N3263. \$16.95. Paper fiber.

■ WESTERN QUALITY SAILCLOTH (Western Auto Supply Co.).

Group H. Cat. No. 9960. \$13.95. Sailcloth.

MOST CONSUMERS NO LONGER BELIEVE that radio and appliance prices are due to drop soon. Leading manufacturers feel that prices will, for the most part, stay where they are now, but look for some to rise slightly due to the increased cost of steel, hiked to a \$6 per ton average.

A trade paper, *Radio & Television Retailing*, comments thus on the price situation

RADIOS

From the well-stocked table radio market, CU rates 49

In the small radio field, the lean years for the consumer are over. Table model radios may now be had for the asking (and the purchase price). A tremendous number of different brands are on the market, and once again you can shop around and pick and choose. The reason: overproduction.

That word, almost forgotten, is heard again today in radio marketing circles. The radio industry hit an all-time production record in 1946, turning out 15½ million sets, most of them table models. And the industry predicts production may reach 18 million this year.

That being the case, CU would be happy to report that the prices of table radios are lower today than they were last year. By and large, they are not. Most are still considerably higher, and manufacturers say their costs will not now permit price reductions, except for a few manufacturers who have made reductions. Even so, thanks to competition for the consumer's dollar, it is now possible to buy a table model radio at discount houses in New York and perhaps in other large cities for less than the manufacturer's list price. Discounts of ten percent and more are not uncommon — this, of course, as compared with discounts up to 40% before the war.

WAKING UP TO MUSIC AGAIN

Back in August, CU rated two electric clocks that can be set to turn on your radio. Now comes the *General Electric 50*, a table radio which includes an electric-switch clock, and which sells for \$32.95. The clock can be used as a regular alarm clock, and also to switch on the radio.

Unless the convenience of a small, compact unit is important to you, it might be well to bear in mind that you could save \$6 and get the same results by purchasing a "Best Buy" radio, the *Trav-Ler 5000W* for \$19.95, and the *Telechron 8H61*, which sells for \$6.95, and is identical with the clock in the *General Electric 50* radio.

Stop

Before buying a table model radio, it may be wise to review your needs and decide whether a table model is actually what you want. Do you want a radio which gives high-fidelity reproduction? If so, and if you have space in your home for a console, and can afford the more expensive large radio, a table radio is not for you. The tone of a table radio is at best inferior to that of a good console. In order to get good tone, especially a deep bass which gives richness to music, a radio must have — among other things — a large "baffle" into which the speaker is set. The cabinet of the console provides space for such a baffle. The cabinet of the table radio cannot.

Size is not always a virtue, however. If you travel a good deal, and want to take the radio with you, it may be best to go to the other end of the scale, and get a midget that will fit into a suitcase (*Reports*, July).

Look

If you do decide to get a table radio, choose one that meets your specific needs. If you intend to use it in the living room, and want the best possible tone, you will have to pay a relatively high price. In fact, the two best radios in CU's test each cost over \$50. If portability is a major consideration, get a small radio. And if you intend to place the radio in a bookshelf, be sure that it fits the space, and that the speaker is at the front of the cabinet, not on the side or top.

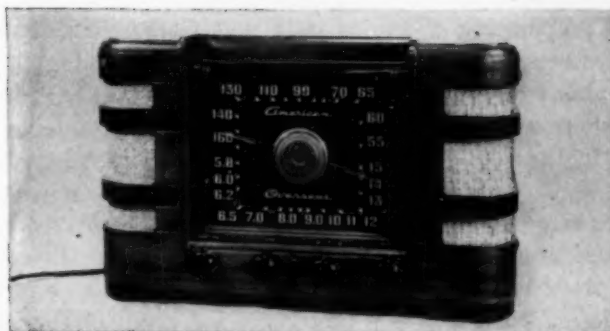
Listen

When you go to the radio store, and have decided tentatively on what you want, *listen to the set you mean to take home with you*. Listen for tone quality, and check it for hum in the following manner.

Take the radio to the quietest location in the store, then turn the volume control way down. Hold your ear

Continued on page 392

TONE



One of two Crosley 66TC tested had very good tone

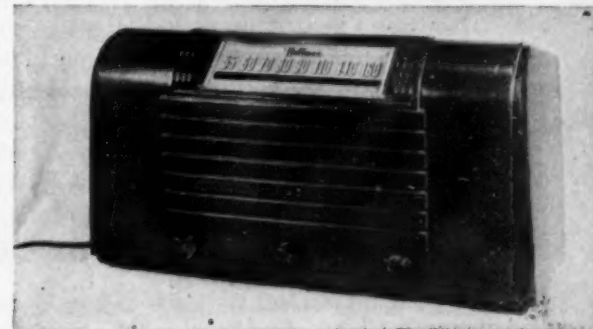


Gilfillan 66B was among those with poor tone

VOLUME

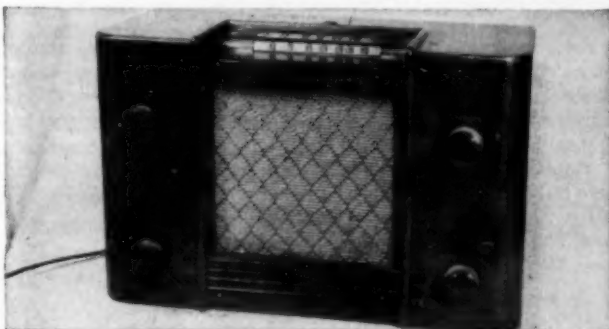


Emerson 512 had good volume for a table model



Hoffman A-300 was "Acceptable" but had weak volume

SENSITIVITY



CU found high sensitivity in Westinghouse H130



GE 50, last "Acceptable" model, had low sensitivity

ELECTRICAL HAZARD



Electrical hazard in the Motorola 65T21 was slight



Both models of the Fada had short-circuit hazard

about six inches away from the speaker: if it is operating on a-c, you'll hear a hum. In a good instrument, this hum should not be audible more than a yard or so from the speaker. If the hum is louder than that, reject the radio: its hum would be annoyingly loud in the comparative quiet of your home.

If the hum isn't objectionable, make a tuning test. Turn the tuning mechanism across the entire length of the dial. See if you can get all the local stations, including those at the extreme ends of the dial. Make sure that the dial drive works smoothly, without catching or slipping. See that the dial light works.

Before you leave with your radio, make sure you have a clear understanding with the dealer about the manufacturer's guarantee period. Usually the guarantee involves replacement of defective parts for 60 to 90 days. (Mail-order houses give money-back guarantees.)

How CU tested

In all, 70 sets were purchased by CU for test. All

RATINGS OF 40 MODELS OF TABLE RADIOS

The ratings below differ widely from those given last year. Many 1946 models have been discontinued; several models found good in 1946 can be recommended no longer on the basis of samples purchased this year. CU engineers chose eleven radios as having relatively good tone and performance. These eleven make up the group of "Acceptable" radios that follow, from which the four "Best

radios were first tested for short-circuit and electrical shock hazard with a standard Underwriters' current leakage tester. Twelve that were found to have a short-circuit hazard were immediately put in the "Not Acceptable" category, and the rest went on to jury listening tests. Using a laboratory broadcasting station, engineers transmitted speech and music records to the radios under test, with the jury checking the instruments for general quality of reproduction. Those found unsatisfactory at this stage were not given further laboratory tests.

The radios still in the running after listening tests were subjected to laboratory examination for frequency response, volume, distortion, sensitivity, interference rejection, hum, and effectiveness of automatic volume control and bass and treble controls.

Two samples of each radio were purchased and listened to for tone, but only one sample of each was tested for the other performance characteristics upon which, together with tone, the ratings are based. For definitions of tone, sensitivity, etc., see page 393.

Buyers" have been selected. The prices given in the ratings are list prices as of September, 1947.

The great majority of the radios tested were for ac-de operation, had built-in antenna and an effective automatic volume control circuit, but did not have tone controls or push-button tuning. Exceptions are noted.

BEST BUYS

■ ■ EMERSON 512 (Emerson Radio & Phonograph Corp., NYC). \$29.95. Small table radio, but had good tone and loud volume for an instrument its size. Usable sensitivity was fairly high; interference rejection, poor. Two-position treble control was weakly effective. On one sample tested, the tuning range was one channel short at low end of the band; on the other, it was 9 channels short at the high end. Shock hazard but no short-circuit hazard. In spite of the shortcomings listed, good tone and volume made this a "Best Buy." Underwriters' label.

■ ■ EMERSON 541 (Emerson Radio & Phonograph Corp.). \$29.95. Good tone and loud volume for a table radio. Had high usable sensitivity, but poor interference rejection. Audible hum was present in both samples tested. Tuning range was 8 channels short at high end of the band. Dial poorly calibrated. Shock hazard, but no short-circuit hazard. In spite of the shortcomings listed, good tone and volume made this a "Best Buy." Underwriters' label.

■ ■ TRAV-LER 5000W (Trav-Ler Radio Corp., Chicago). \$19.95. Could be classed as a large midget radio. Sample tested had fairly good tone and fairly loud volume for a table radio. Usable sensitivity was low and interference rejection poor. Shock hazard but no short-circuit hazard. In spite of the shortcomings listed, the low price made this model a "Best Buy." No Underwriters' label.

■ ■ WESTINGHOUSE H-130 (Westinghouse Electric Corp., Sunbury, Pa.). \$39.95. Medium-size table radio with very good tone and fairly loud volume for a table radio. High usable sensitivity, but poor interference rejection. Both samples tested had audible hum. Treble control was moderately effective. Shock hazard but no short-circuit hazard. The very good tone made this model a "Best Buy." Underwriters' label.

ACCEPTABLE

In order of estimated over-all performance. The first four radios listed rated about the same.

■ ■ MOTOROLA 65T21 (Galvin Mfg. Corp., Chicago). \$59.95. Model discontinued, but may still be available at some stores. A large table radio. One of the two samples tested had very good tone for a table radio; the tone of the other was only fairly good. Volume was fairly loud and usable sensitivity high. Good interference rejection. Moderately effective combination bass and treble control. Slight shock hazard but no short-circuit hazard. Single, crowded short-wave dial. A-c only. Underwriters' label.

■ ■ CROSLEY 66TC (Crosley Corp., Cincinnati). \$54.95. Large table radio. One of the two samples tested had very good tone; the other was only fairly good. Loud volume for a table radio and fairly high usable sensitivity. Fair interference rejection. Combination bass and treble control weakly effective. On one sample, tuning range was 5 channels short of the high end of the band. Speaker

located on the side of the cabinet. Slight shock hazard, but no short-circuit hazard. Single, crowded short-wave band. A-c only. No Underwriters' label.

■ ■ WESTINGHOUSE H-130 (see "Best Buys"). \$39.95.

■ ■ EMERSON 512 (see "Best Buys"). \$29.95

■ ■ EMERSON 541 (see "Best Buys"). \$29.95

The following six radios rated about the same in over-all performance.

■ ■ HOFFMAN A-200 (Hoffman Radio Corp., Los Angeles). \$27.50. Small table radio. Fairly good tone, but volume rather weak. Sample tested showed fairly high usable sensitivity, and fair interference rejection. Tuning range was one channel short at the high end of the band. On the sample tested, tuning was poorly calibrated. Knobs were recessed, hard to grasp. Shock hazard but no short-circuit hazard. Underwriters' label.

■ ■ ADMIRAL 6T11-5B1 (Admiral Radio Corp., Chicago). \$37.95. Medium-size table radio. For a table model, this radio had fairly good tone and fairly high usable sensitivity. Volume was rather weak and interference rejection was poor. Poor dialing and stiff tuning knob on both samples tested. Shock hazard but no short-circuit hazard. Underwriters' label.

■ ■ ADMIRAL 6T01-6A1 (Admiral Radio Corp.). \$32.95. Small table radio with high usable sensitivity, good interference rejection, but fairly weak volume. Poor dialing. CU jury listened to 3 samples of this radio and found a great variation in tone among

SOME DEFINITIONS: READ THESE BEFORE YOU READ THE RATINGS

TONE or FIDELITY refers to the relative ability of the radio to reproduce faithfully, to the ear, the program that is being broadcast. It is possible, of course, to break tone down into component parts such as the range and intensity of high and low frequencies (treble and bass), and the balance between those and the middle frequencies; the amount of distortion; and several other factors.

USABLE SENSITIVITY is the set's ability to pick up weak or distant stations above its inherent hiss and crackle.

INTERFERENCE REJECTION is the ability of the radio to receive a single station without interference from stations on other frequencies. Interference can consist of getting two programs at the same time; of steadily-pitched whistles; of "birdies" (whistles that go up and down when you tune through a station); or of telegraph signals and "monkey chatter" (hearing a second program, garbled, in the background). No radio can reject interference from a second AM station on the same broadcasting channel. Most types

of interference are not a serious problem in many areas, but if it is serious in your locality, select a radio rated relatively high on interference rejection.

TONE CONTROL is a device operated by a knob which permits the adjustment of the relative amounts of treble or bass received.

LOUDNESS or VOLUME refers to the maximum intensity which the radio can produce without excessive distortion.

INADEQUATE TUNING RANGE refers to a set's inability to receive all wavelengths between the two ends of the standard broadcast band. In the United States this band ranges from 540 to 1600 kilocycles (kc). It is common to find a receiver which cuts off some small portion of the band from one or both ends. To the buyer, this may or may not be an important factor, depending upon whether or not there is a station broadcasting on the missing wavelengths within listening range. The defect often varies from sample to sample, and can be easily readjusted by a serviceman.

them; tone of the best was only fairly good. Shock hazard but no short-circuit hazard. Underwriters' label.

■ **TRAV-LER 5000W** (see "Best Buys"). \$19.95.

■ **HOFFMAN A-300** (Hoffman Radio Corp., Los Angeles). \$49.50. Fairly large table radio with good tone, but weak volume; very low usable sensitivity, and poor interference rejection. Treble control was weakly effective. Tuning range on sample tested was one channel short at the low end of the band. Poor dialing on sample tested. Slight shock hazard but no short-circuit hazard. A-c operation only. Underwriters' label.

■ **GENERAL ELECTRIC 50** (General Electric Co., Bridgeport, Conn.). \$32.95. Large midget radio and alarm clock combination. (The clock appeared to be identical with the Telechron 8H61; see *Reports*, August.) The radio section of the combination had fairly good tone and fairly loud volume for a table radio. Usable sensitivity was low and interference rejection, poor. The automatic volume control on the sample tested was weak. Dial small and crowded, and tuning knob, stiff. No dial light. Equipped with a hank antenna, which must be stretched out to obtain satisfactory reception. Shock hazard but no short-circuit hazard. A-c operation only. Underwriters' label.

POOR TONE

The following radios were found during jury listening tests to have poorer tone than the radios listed above. For this reason they were not given the complete laboratory tests for performance, and are not recommended for purchase. Listing is alphabetical.

- AIRLINE Cat. No. — 1504 M (Montgomery Ward). \$22.95.
- AIRLINE Cat. No. — 1804 M (Montgomery Ward). \$34.95.
- ARVIN 664A (Noblitt-Sparks Industries, Columbus, Ind.). \$30.95.

○ ECA 108 (Electronic Corp. of America, NYC). Model discontinued.

○ EMERSON 515 (Emerson Radio Corp., NYC). \$29.95.

○ GAROD 6AU-1 (Garod Corp., Brooklyn). \$43.75.

○ GENERAL ELECTRIC 321 (General Electric Co., Bridgeport, Conn.). \$49.95.

○ GILFILLAN 56B (Gilfillan Bros., Inc., Los Angeles). \$30.95.

○ LEARADIO 565 (Lear, Inc., Grand Rapids). \$33.35. Model discontinued, but may still be available at some stores.

○ MAJESTIC 5A-410 (Majestic Radio Corp., St. Charles, Ill.). \$27.95.

○ MAJESTIC 5A-430 (Majestic Radio Corp.). \$29.95. Model discontinued, but may still be available at some stores.

○ MOTOROLA 55X11A (Galvin Mfg. Corp., Chicago). \$25.95. Model discontinued, but may still be available at some stores.

○ MOTOROLA 65X11 (Galvin Mfg. Corp.). \$28.10. Model discontinued, but may still be available at some stores.

○ OLYMPIC 6-501 (Olympic Radio & Television, Inc., Long Island City, N. Y.). Ivory \$19.95; ebony, \$14.95; walnut, \$16.95.

○ PHILCO 46-200 (Philco Radio Corp., Philadelphia). \$19.95.

○ PHILCO 46-250 (Philco Radio Corp.). \$27.95.

○ PHILCO 46-420 (Philco Radio Corp.). \$34.95.

○ RCA 65X1 (Radio Corp. of America, Camden, N. J.). \$24.95.

○ SILVERTONE Cat. No. — 6012 (Sears-Roebuck). \$18.95.

○ SILVERTONE Cat. No. — 7021 (Sears-Roebuck). \$33.20. Not listed in Fall '47 catalog, but may still be available in some retail stores.

○ SILVERTONE Cat. No. — 7054 (Sears-Roebuck). \$37.95. Not listed in Fall '47 catalog, but may still be available in some retail stores.

○ SONORA RBU-176 (Sonora Radio Corp., Chicago). \$29.20.

○ SONORA RDU-209 (Sonora Radio Corp.). \$39.95.

○ ZENITH 5D011 (Zenith Radio Corp., Chicago). \$26.95.

○ ZENITH 6D015 (Zenith Radio Corp.). \$26.50.

○ ZENITH 6D030 (Zenith Radio Corp.). \$38.95.

NOT ACCEPTABLE

The following radios were rated "Not Acceptable" because they had a short-circuit hazard. Listing is alphabetical.

○ AIRCASTLE Cat. No. — 330 (Spiegel, Chicago). \$18.95. Not listed in latest catalog.

○ ALDENS Cat. No. — 1531L (Aldens, Chicago). \$18.95. Not listed in latest catalog.

○ CO-OP R-546 (National Co-operatives, Inc., Chicago). \$19.95.

○ FADA 605W (Fada Radio & Electric Co., NYC). \$24.95.

○ FADA 652 (Fada Radio & Electric Co.). \$36.50. Model discontinued, but may still be available in some stores.

○ FADA 1000 (Fada Radio & Electric Co.). \$36.50.

○ LAFAYETTE MC11B (Lafayette Radio Corp., NYC). \$23.85.

○ LEE 400 (Jason Electronics Co., Brooklyn). \$12.95.

○ REGAL 205 (Regal Electronics Corp., NYC). \$18.95.

○ SENTINEL 284-L (Sentinel Radio Corp., Evanston, Ill.). \$25.75. Model discontinued, but may still be available at some stores.

○ SENTINEL 294-T (Sentinel Radio Corp.). \$49.95.

○ TEMPLE G-513 (Templetone Radio Corp., New London, Conn.). \$19.95. Model discontinued, but may still be available at some stores.

The open season for oil ads is on. In CU's tests *Esso* #1 rated high, but . . .



. . . *Havoline* was one of five oils that failed tests for pour point requirement

OIL

The way your engine performs in cold weather depends in part on your motor oil.

Ten of the 32 brands of 10 and 10W oil tested turned out to be "Not Acceptable"

The cold morning will soon be here when you press the accelerator in your car and wonder if the motor is going to turn over. There are several things that make starting in cold weather difficult — reduced battery output, for instance, or the small percentage of gasoline that will vaporize to form a combustible mixture with air. But the controlling factor in getting the motor to turn over is the amount of friction at the cylinder and bearing surfaces. And for each car this, in turn, depends on the viscosity of the motor oil.

For 10° F. and below

Thirty-two brands of winter motor oil have been rated by the CU laboratory, after tests for viscosity, viscosity index, and pour point. Since oils specified as No. 10 or 10W are especially intended for winter use, only oils so designated were tested. Motorists who use a 20W oil for summer, as recommended by some car manuals, may find that they can get by without changing to a 10W oil in winter, if they live where the temperature does not get down below zero. But for 10° Fahrenheit and below, the 10 or 10W oil is usually recommended.

Low temperatures make oils thicker, or more viscous; and so, to avoid excessive drag on the pistons and wear on the battery, and in order to facilitate starting, a "thin" or low viscosity oil is needed.

To get some idea of the effect temperature has on viscosity, consider that at 210° F., two ounces of oil take 45 seconds to flow through an opening 0.07 inches in diameter. But at 0° F., the time is about three hours. This characteristic of motor oil — change in viscosity as the temperature changes — is related to its "viscosity index." The viscosity index is determined mathematically from the viscosities of an oil at two different temperatures. Important requirements for a good oil include suitable viscosity and as high a viscosity index as possible. Such an oil will not thin out too rapidly at high operating temperatures or get too stiff at low temperatures.

Pour point

Testing for pour point involves finding the lowest temperature at which an oil will continue to flow in a standardized glass tube cooled under controlled conditions. Although oil in a crankcase will not necessarily freeze when the atmospheric temperature drops below the laboratory-determined pour point, it can be assumed that oils with low pour points are less likely to contribute to cold-weather starting troubles.

There are, of course, other performance requirements for a good motor oil — stability, and the ability to reduce wear, sludging, and corrosion of the bearings. But unfortunately there are no recognized laboratory methods for evaluating these properties.

The oils rated "Acceptable," therefore, were those

whose viscosity index and pour point met United States Army specifications, and whose viscosity met automotive manufacturers' specifications. According to the latter, the viscosity of a 10W oil must be between 5000 and 10,000 seconds at 0° F. And a No. 10 oil must have a viscosity of between 90 and 120 seconds at 130° F.

Brands, types, grades

Esso No. 1 was the only brand tested which not only met all of these requirements, but which also had the added attraction of meeting the viscosity requirements of an SAE-20 oil, as well. Should a warm spell occur during the winter, *Esso No. 1* would retain enough body to lubricate satisfactorily in hard driving. And it had the highest viscosity index of any oil tested besides.

Eight brands failed to meet the requirements. *Amoco Permalube*, *Amoco Motor Oil*, and *Wolf's Head* were too high in viscosity at 0° F.; *Sunoco* had a low-viscosity index; and *Veedol*, *Vita Power*, *Ward's 100% Pure Pennsylvania*, and *Havoline* failed to meet the pour point requirement.

Two brands — *Cities Service* and *Firestone* — showed inconsistencies between the two samples tested. One sample of *Cities Service* failed to meet the viscosity requirement, while one sample of *Firestone* failed to meet the pour-point requirement.

Most companies manufacture a "Regular Type" motor oil which sells for 25¢ to 30¢ and a "Premium

Type" which usually sells for 35¢ to 40¢ a quart. The Lubrication Committee of the American Petroleum Institute has defined these terms as follows: "Regular" describes a motor oil that is "generally suitable for use in internal combustion engines under moderate operating conditions"; and "Premium," an oil that has "the oxidation stability and bearing corrosion preventive properties necessary to make it generally suitable for use in internal combustion engines where operating conditions are more severe than regular duty." This Committee adds a third category, "Heavy Duty Type," which is described as a premium-type oil containing detergent-dispersant characteristics necessary to make it generally suitable for use in both high-speed diesel and gasoline engines under heavy-duty service conditions.

It is true that most oil companies manufacture and sell two or three grades of oil; but, perhaps in part because there is no standard way to test for such properties as bearing corrosion, only a few have thus far adopted the classifications as they are defined above. Because of this situation, and because the average passenger car is not often operated at full power, as it would be, for example, in sustained high-speed driving, mountain climbing, or in fast acceleration, CU recommends buying "Regular Type," rather than "Premium." It is cheaper, and it is good enough for ordinary driving conditions. "Heavy Duty" oil is suitable for sustained high-speed truck and bus travel under heavy loads.

RATINGS OF 32 BRANDS OF WINTER MOTOR OIL

The brands listed below met automotive manufacturers specifications for a 10W oil, and U. S. Army specifications for viscosity index and pour point for No. 10 oil. Listing is alphabetical since laboratory tests showed differences between brands to be small, but note comments. Except where noted, two samples of each brand were tested, and only oil in sealed containers was tested. Bulk oil is likely to be variable, and is not recommended. Prices given below are for 1-qt. cans, unless otherwise noted.

ACCEPTABLE

- ATLANTIC AVIATION (Atlantic Refining Co.). 35¢.
- ATLANTIC A QUALITY (Atlantic Refining Co.). 30¢.
- CITIES SERVICE KOOLMOTOR (Cities Service Oils). 35¢.
- CONOCO *nth* (Continental Oil Co.). 35¢.
- CO-OP (Consumer Cooperatives Ass'n). \$1.89 for 2 gal. (Cost per qt., 24¢.)
- ESSO No. 1 (Colonial Beacon Oil Co. and Standard Oil Co.). 35¢. Labeled for use where a 10W or 20W is recommended. Met 10W and SAE-20 specifications.
- GOLDEN SHELL (Shell Oil Co.). 25¢.

- GULFPRIDE (Gulf Oil Corp.). 35¢.
- KENDALL (Kendall Refining Co.). 35¢.
- MOBILLOIL (Socony-Vacuum Oil Co.). 35¢.
- PENNZOIL (Pennzoil Co.). 35¢ and 40¢.
- PERMALUBE (Standard Oil Co.). 36¢.
- PHILLIPS 66 (Phillips Petroleum Co.). 31¢.
- QUAKER STATE (Quaker State Oil Refining Corp.). 35¢.
- RICHLUBE (Richfield Oil Corp.). 35¢.
- SHELL X-100 (Shell Oil Co.). 35¢.
- SINCLAIR OPALINE (Sinclair Refining Co.). 30¢.
- SINCLAIR PENNSYLVANIA (Sinclair Refining Co.). 35¢.
- TEXACO (Texas Co.). 30¢.
- TIOLINE (Pure Oil Co.). 36¢.
- TRAVELENE (Strauss Stores Corp.). \$2.29 for 2 gal. (Cost per qt., 29¢.)
- WARDS VITALIZED Cat. No. — 8317R (Montgomery Ward). \$4.59 plus postage for 5 gal. (Cost per qt., 23¢.)

NOT ACCEPTABLE

- AMOCO (American Oil Co.). 25¢ and 30¢. Two samples tested failed to meet viscosity requirement for a 10W oil.

- AMOCO PERMALUBE (American Oil Co.). 35¢ and 40¢. Two samples tested failed to meet viscosity requirements for a 10W oil.
- CITIES SERVICE (Cities Service Oils). 35¢. One of two samples tested failed to meet the viscosity requirements of a 10W oil.
- FIRESTONE SUPREME (Firestone Tire & Rubber Co.). \$1.98 and \$1.53 for 2 gal. (Cost per qt., 25¢ and 19¢.) One of two samples tested failed to meet the pour point requirement.
- HAVOLINE (Texas Co.). 30¢ and 35¢. Both samples failed pour point requirement.
- SUNOCO (Sun Oil Co.). 25¢ and 35¢. Two samples tested had low viscosity index.
- VEEDOL (Tide Water Associated Oil Co.). 35¢. Both samples failed pour point requirement.
- VITA POWER (Western Auto Supply Co.). 26¢. Both samples failed pour point requirement.
- WARDS 100% PURE PENNSYLVANIA Cat. No. — 8302R (Montgomery Ward). \$4.59 plus postage for 5 gal. (Cost per qt., 23¢.) Failed pour point requirement. One sample tested.
- WOLF'S HEAD (Wolf's Head Oil Refining Co.). 35¢. One sample tested; failed viscosity requirement 10W oil.

OF THREE GENERAL TYPES TESTED, BLOWERS BY AND LARGE WERE BEST

If you need an electric heater to take the chill out of the bathroom or sickroom before the furnace does, to dry stockings, to warm baby's nursery for a brief period during the night, or to provide a little warmth in early fall and late spring, there are many models and types to choose from.

The 30 models tested by CU varied in performance from poor to superior. Price provides no guide to quality; the two most expensive models were rated "Fair" and "Poor." The type of heater to buy depends in part on the principal use to which you will put it. Since brand names are similar, and very different models of the same brand are distinguished only by model number, be sure to get the precise model you want.

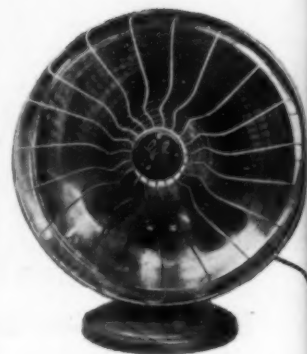
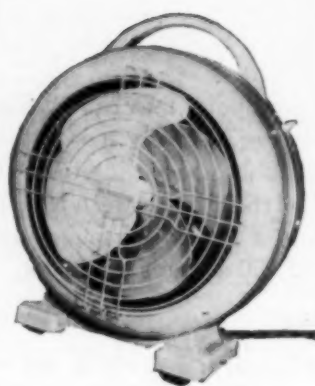
CONVECTION HEATERS. The poorest of the heater types tested were the simple convection heaters. Out of ten of these, all but one rated "Poor" or "Not Acceptable."

The convection heaters are designed to warm the air in the immediate vicinity of the heater unit. This air, when heated, rises; and convection currents are thus established which bring cool air in contact with the heater and gradually circulate warm air through the room. In practice, convection heaters wastefully send warm air up to the ceiling, leaving the part of the room in which you live still cold. Also, the convection heater tends to heat a relatively small volume of air to an unnecessarily high temperature; convection currents by themselves are seldom efficient at mixing the warm air.

"STEAM" ELECTRIC RADIATORS. Two models were tested — the *Electresteam T* and *Wittie WS-100*. Both of these use electricity to heat water to steam which in turn heats the radiator sections. The air is heated mainly through ordinary convection from the surface of the unit. The *Wittie* has a fan to aid convection. The chief disadvantage is the time necessary to heat the steam — 20 minutes for the *Electresteam* and ten minutes for the *Wittie*. Neither is suitable if you want to get warm fast. And steam radiators do not humidify the air.

RADIATION HEATERS. The radiation heaters are in general simple, inexpensive, and efficient for warming people or objects directly in the focus of the radiant heat.

But the radiation heaters are not efficient air warmers; in most circumstances their warmth is absorbed by the wall or furniture in their path rather than contributing directly to room comfort generally. As a measure of radiation, a device known as an infra-red photometer was used to gauge the amount of heat radiated to a screen four feet square placed five feet from the heater. Despite its lower power consumption (1000 watts), the *General Electric PH2A1* was found to concentrate far more heat than any of the 1320-watt models.



Kenmore — 7204 at \$15.95 (left) and GE PH2A1 at \$7.95 were "Best Buys" among blower and radiation heaters respectively

\$19.95
surf

ELECTRIC

RADIATION-CONVECTION HEATERS. Several of the heaters tested, including the *Everhot Ray-Vector* and *General Electric PH1A1*, are offered as combination radiation-convection heaters. A heater which would actually keep you comfortable by radiant heat while you waited for it to warm the room through convection would be very nearly ideal; but none of the models tested performed both functions well. In the listings, the combination heaters have been rated in the category in which each appeared to function best.

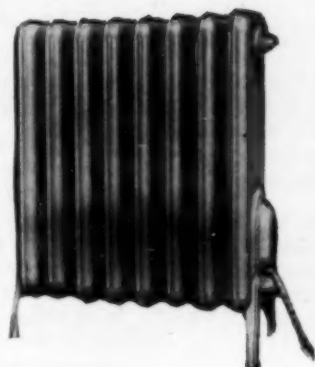
BLOWER-TYPE HEATERS. Best by a wide margin for warming up a small room and for other uses are the blower heaters — convection heaters equipped with a fan or blower to help circulate the air.

The fan helps put the warm air where you want it instead of just below the ceiling. It permits the heater to operate at a much lower shell temperature, reducing the risk of burns. It is the safest source of portable heat to have around the house, warms up quickly, and can be used as a "spot" heater to warm your fingers and toes. The *Surf* proved especially effective in blowing warm air to a particular spot, and the *Thermador HF131* least effective in this respect.

Power and efficiency

All electric heaters operate at 100% efficiency. The problem is to get the heat where you want it, when you want it.

The maximum wattage considered safe for portable appliances (under the National Electrical Code of the National Fire Protection Association) in houses built before World War II with 15-ampere fuse circuits is 1320 watts. Postwar houses should have 20-ampere fuse circuits and hence can safely use somewhat larger heaters. Most of the units tested were 1320-watt.



\$19.95 Markel (left), a convector-radiator, was low on list. Large surface of \$31.75 Co-Z-Air convector made it more effective

C HEATERS

Only the Kenmore 7204, at 1600 watts, drew more than the recommended minimum. If your lights dim when the refrigerator goes on, it is probably inadvisable to purchase the Kenmore 7204, or any other oversize heater. The Kenmore 7204 was the most effective room heater tested; but its effectiveness was due in part to a 20% higher current consumption — with a resulting 20% increase in operating cost.

The hazards of keeping warm

Except for the best designed of the blower-type heaters, any portable heater constitutes a household hazard. Fire, burns, or shock may result in several ways.

Direct burns. Most of the heaters tested, except the blower types, operated at a high shell temperature, and several models were rated "Not Acceptable" because of the possibility of burned fingers from their handles. The handles of the Arvin 52, Hy-Temp 101, and Kenmore 7192, for example, became too hot to touch in about an hour. The exposed fin blades of the Zephyr 36 reached 400° Fahrenheit.

RATINGS OF 30 MODELS OF PORTABLE ELECTRIC ROOM HEATERS

Listing is in order of over-all quality, within type. Dimensions are for height, width and depth, in that order.

BEST BUYS

■ ■ KENMORE Cat. No. — 7204 (Sears-Roebuck). \$15.95 plus postage. 13"x11"x6"; 7¼ lb.; 1600 watt (see story). Circular, blower-type heater. Good performance. Switch permitted use as warm-air blower, or cooling fan. Noiseless as heater, average noise when used as fan. Effectiveness of fan about the same as that of good 8" fan. One-year guarantee. A-c only. Underwriters' label.

■ ■ ARVIN 102 (Noblitt-Sparks Industries,

Inc., Columbus, Ind.). \$9.80. 10"x10"x7"; 6¼ lb.; 1320 watt. Rectangular, blower-type heater. Good performance. Warm air blower only. No switch. 90-day guarantee. A-c only. Underwriters' label.

■ ■ GENERAL ELECTRIC Model PH2A1 (General Electric Co., Bridgeport, Conn.). \$7.95. 17"x15"x10"; 4 lb.; 1000 watt. Bowl-shaped, radiation heater. Adjustable tilt. Superior performance for its type. Easily replaceable screw-type resistance unit. No switch. Ac-dc. Underwriters' label.

ACCEPTABLE

Convection heaters with and without blowers.

Blower-type heaters — convection heaters equipped with a fan — were by far the best of the types tested. Convection heaters without the blower were generally poorest.

■ ■ KENMORE Cat. No. — 7204 (see "Best Buys").

■ ARVIN Deluxe 203A (Noblitt-Sparks Industries, Inc.). \$13.30. 12"x11"x7"; 7¼

Charring. Some people carelessly drape articles of clothing over a portable heater to dry them. CU tested the 30 models by placing clothes over them while in operation. None of the blower-type heaters caused any charring. One convection heater, the Zephyr 36, was rated "Not Acceptable" because it charred cloth in 15 minutes. If you occasionally use your heater to dry clothes, place clothes on a rack in front of the heater instead of directly on the heater. The Co-Z-Air was equipped with a special side-bar for this purpose, and the Spiegel 2157 had a handle which could be swung forward to use as a drying rack. Radiant and convection heaters should be kept away from drapes or curtains or the like.

Tipped heaters. Especially if children are around, your heater may be tipped over while in use. CU tested all heaters to see whether, when tipped over, they charred or scorched the wood surface on which they rested.

Even when tipped over, few of the blower-type heaters hurt the floor at all. The Kenmore 7192 is so designed that it promptly reassumed an upright position; a special effort was required to keep it down. The Thermador Seven Leaguer, though it tipped over easily, was so designed that it would not come to rest with the heating element faced directly downward. The Everhot Ray-Vector was equipped with a safety switch which automatically shut off the current if the heater was placed face down. All of the other radiant heaters charred or scorched wood if placed in a face-down position.

Operating costs

All electric room heaters are expensive to operate; the standard 1320-watt type costs \$13 a month if used eight hours a day at 4¢ a kilowatt hour. Few of the heaters are entirely safe; many involve a serious risk of shock, burn, or fire. Some types toast you on one side while the other side freezes; other types heat the ceiling air but leave the rest of the room chilled. The best electric heater is no substitute for insulating your house, installing storm windows, renovating your furnace, or otherwise improving the basic heat balance.

lb.; 1320 watt. Rectangular, blower-type heater. Good performance. Warm-air blower only. Had on-off switch, and red bulb to indicate when heater was on. Noiseless operation. 90-day guarantee. A-c only. Underwriters' label.

■ COMFORTAIR 11A (Mimar Products, Inc., Brooklyn). \$24.15. 14"x11"x6"; 9¼ lb.; 1320 watt. Rectangular, blower-type heater. Good performance. Switch permitted use as warm-air blower or cooling fan. Fairly noiseless as blower-heater, somewhat above average noise when used as fan. Fan performance about same as that of good 8" fan. One-year guarantee. A-c only. Underwriters' label.

■ ARVIN 102 (see "Best Buys").

■ EVERHOT AIR-FLOW 910 (Swartzbaugh Mfg. Co., Toledo, Ohio). \$12.95. 10"x9"x7"; 5½ lb.; 1320 watt. Rectangular, blower-type heater. Fairly good performance. Warm-air blower only. No switch. Noiseless operation. A-c only. Underwriters' label.

■ SURF SEASON-AIR 590-1 (G-M Lab., Inc., Chicago). \$24.95. 14"x12"x9"; 8 lb.; 1320 watt. Circular, blower-type heater. Fairly good performance. Heating frame easily removed, permitting use as separate fan. Fan performance equal to that of average 10" fan, but rear of blade guard inadequate. Most effective of blower-type heaters for directing heat at a desired location. Had on-off switch. Fairly noiseless both as blower-heater and as fan. One-year guarantee. A-c only. Underwriters' label.

■ THERMADOR HF131 (Thermador Electrical Mfg. Co., Los Angeles). \$14.95. 12"x9"x6"; 6½ lb.; 1320 watt. Rectangular, blower-type heater. Fairly good performance. Switch permitted use as warm-air blower, or cooling fan. Very poor when used as fan, and very ineffective for directing heat toward a desired location. Noiseless as blower-heater, fairly noiseless as fan. A-c only. Underwriters' label.

■ CO-Z-AIR (Henry J. Morton Associates, Inc., Detroit). \$31.75. 23"x20"x7"; 30 lb.; 1320 watt. Looked like ordinary steam radiator. No blower. Fair performance. Did not use water; heated air in 8 radiator-like sections. Effectiveness due to large surface. Included side bar for drying small articles of clothing. No switch. Ac-de. One-year guarantee. Underwriters' label.

■ WITTIE PORTABLE ELECTRIC STEAM HEATER WS100 (Wittie Mfg. & Sales Co., Chicago). \$47.95. (Sold in some places for \$29.95.) 19"x21"x9"; 30 lb.; 1000-watt heating element. Rectangular, blower-type heater. Fair performance. Heated 1½ qt. water. No on-off switch. Would have rated higher except that heater took about 10 min. to warm up. One-year guarantee. A-c only. Underwriters' label.

■ SAFE-T-HEAT 3F (C. C. Galbraith & Son, Inc. NYC). \$26.26. 16"x20"x6"; 17¼ lb. Had 2 switches, each controlling 660 watts. Rectangular heater. No blower. Poor performance. Ac-de. Terms of guarantee not stated. Underwriters' label.

■ KORD HEATMASTER 101A (Kord Mfg. Co., NYC). \$16.80. 19"x23"x6"; 19½ lb.; 1320 watt. Rectangular heater. No blower. Poor performance. Had switch. A-c only (switch not rated for d-c). Underwriters' label.

■ TRILMONT SAFETY HEATER AA (Trilmont Products Co., Philadelphia). \$33. 19"x4"x9"; 19¼ lb.; 1320 watt. Rectangular heater. No blower. Poor performance. No switch. Ac-de. One-year guarantee. Underwriters' label.

■ COZETTE BW-1 (Brown Fintube Co., Elyria, Ohio). \$11.95. 12"x15"x8"; 10¼ lb.; 1350 watt. Elliptical heater, flat at top and bottom. No blower. Poor performance. No switch. Ac-de. One-year guarantee. Underwriters' label.

■ ROYAL MASTER 150 (Royal Master Appliance Co., Marion, Ohio). \$9.40. 16"x14"x7"; 6¾ lb.; 1320 watt. Semi-cylindrical heater. No blower. Poor performance. Had polished reflectors intended to radiate heat, but radiation was as poor as convection. No switch. Ac-de. Underwriters' label.

■ LA SALLE HEETAIRE Model L195K1 (La Salle Lighting Products, Inc., Buffalo). \$19.85. 14"x10"x11"; 7¾ lb. Had 2 heating elements, each rated at 660 watts. Rectangular blower-type heater. Relatively poor performance. When heater was plugged into line, one element heated while a reflector radiated the heat. No on-off switch for controlling this element, but there was a switch for turning on the second element and its fan. Heater was efficient neither as a radiator nor convector. A-c only. Underwriters' label.

■ SAFE-T-GLO 2C (C. C. Galbraith & Son, Inc.). \$16.75. 16"x19"x6"; 11¼ lb. Had 2 switches, each controlling 660 watts. Rectangular heater. No blower. Poor performance. Had polished reflector for radiation, but radiation was as poor as convection. Ac-de. Underwriters' label.

■ MARKEL HEETAIRE 195K1, Neo-Glo Model (Markel Electric Products, Inc., Buffalo). \$19.85. 16"x10"x12"; 9½ lb. Heating elements like those of *La Salle Heetaire*, to which it was similar. Rectangular, blower-type heater. Relatively poor performance. Sample tested developed slight rattle in use. Had switch. A-c only. One-year guarantee. Underwriters' label.

■ ELECTRESTEEM T (Electric Steam Radiator Corp., Detroit). \$37.35. 23"x21"x7"; 40 lb.; 950 watt. Looked like ordinary steam radiator. No blower. Performance would have been rated fair, but for the fact that heater took at least 20 min. to heat up. Had safety pressure plug which blew when radiator was covered. No switch. Ac-de. One-year guarantee. Underwriters' label.

Radiation heaters

Radiation heaters are simple and efficient for warming people or objects located directly in the focus of the heat emitted. They are not efficient air warmers.

■ GENERAL ELECTRIC Model PH2A1 (see "Best Buys").

■ EVERHOT RAY-VECTOR Model S15 (Swartzbaugh Mfg. Co.). \$12.95. 16"x15"x9"; 6¾ lb.; 1320 watt. Elliptical heater. Good performance. In addition to an on-off switch, had safety switch, so that if accidentally knocked over with heating element facing floor, heater shut itself off. Provided with lever which raised bottom plate, to convert heater to convection-type. Because performance as convection heater was only fair, CU recommends this unit as radiant heater only. The only radiant heater tested which did not scorch or char floor when overturned. A-c only. Underwriters' label.

■ ARATHERM (Jamaica Machine Co., Boston). \$14.95. 17"x12"x9"; 8¾ lb.; 1320 watt. Rectangular heater. Fair performance. No switch. Ac-de. No Underwriters' label.

■ ECONOMASTER Model D (Economaster Products Co., Nashville, Tenn.). \$9.95. 17"x14"x10"; 7½ lb.; 1250 watt. Rectangular heater. Fair performance. No switch. Ac-de. No Underwriters' label.

■ GENERAL ELECTRIC Model PH1A1 (General Electric Co.). \$13.15 steel; in aluminum, \$15.75. 19"x14"x8"; 11½ lb.; 1320 watt. Semi-cylindrical heater. Fair performance. Performance also fair when used as convection heater. May be mounted on wall. No switch. Ac-de. One-year guarantee. Underwriters' label.

■ ZEPHYR (Kenrod Mfg. Co., NYC). \$15.67. 19"x17"x9"; 10¼ lb.; 1320 watt. Rectangular heater. Relatively poor performance. A-c only. No Underwriters' label.

NOT ACCEPTABLE

○ NOMA A4 (Noma Electric Corp., NYC). \$19.95. Model temporarily discontinued. 19"x23"x6"; 17½ lb.; 1320 watt. Rectangular, convection-type heater. "Not Acceptable" because it had no handle. Ac-de. Underwriters' label.

○ ZEPHYR 36 (Ceram-i-cast Corp., Plainfield, N. J.). \$10.99. 9"x15"x6"; 6¾ lb.; 1320 watt. Rectangular, convection-type heater. No switch. Exposed fin blades reached a temperature of 400°F. "Not Acceptable" because it charred cloth thrown over it in 15 min. Ac-de. Underwriters' label.

○ THERMADOR SEVEN LEAGUER LP131N (Thermador Electric Mfg. Co., Los Angeles). \$13.75. 36"x10"x10"; 3¾ lb.; 1320 watt. Tall cylinder. Radiation heater. Relatively poor radiator. Easily tipped over, but did not come to rest with heated element facing directly downward. "Not Acceptable" because of severe short-circuit hazard. A-c only. No switch. Not tested for damage to floor. Marked for a-c only, but may be used for ac-de. Underwriters' label.

○ ARVIN 52 (Noblitt-Sparks Industries, Inc.). \$9.95. 14"x17"x10"; 10 lb.; 1320 watt. Elliptical, radiation-type heater, with flattened sides. Relatively poor radiator. "Not

Acceptable" because handles became too hot to touch in about an hour. No switch. Ac-dc. Underwriters' label.

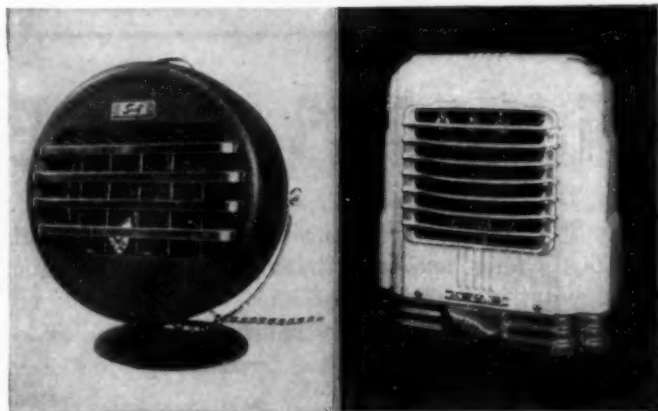
○ HY-TEMP 101 (Hydro-Aire, Inc., Burbank, Calif.). \$10.25. 13"x18"x9"; 6¼ lb.; 1320 watt. Elliptical, radiation-type heater, flat at sides. Relatively poor radiator. "Not Ac-

ceptable" because handles became too hot to touch in about an hour. Body surface discolored and finish on reflecting surface crazed during testing. No switch. Ac-dc. Underwriters' label.

○ KENMORE Cat. No. — 7192 (Sears-Roebuck). \$6.95 plus postage. 11"x16"x13";

10¼ lb.; 1320 watt. Elliptical, radiation-type heater, flat at top and bottom. Relatively poor radiator. "Not Acceptable" because handles became too hot to touch in about an hour. When upset, heater righted itself. No switch. Ac-dc. Money-back guarantee. Underwriters' label.

The Shape of Things: design of most heaters is pretty bad



The Arvin 203A (right) is a designers' nightmare; from the design point of view, the Surf Season-Air (left) comes out the winner

by Elliot F. Noyes

There is a surprising diversity of shapes among the portable heaters rated this month. Three main types of heaters are represented, and there are numerous variations within each type. For example, among the radiant heaters, all of which use some sort of incandescent filament with a reflecting surface behind, one may employ loosely strung coils of wire, another may have the wire wrapped on a rigid insulating core, another a tight spiral of wire on a tapered core, and so forth. Each variation immediately suggests a form, and by and large, the heating system used has determined the shape of each of these heaters.

So far so good, but not much farther. For throughout the group, there is also a surprising consistency in shoddiness of construction and appearance. Many of the heaters seem to have been slapped together as if the only thought were to get the heating unit covered up as quickly as possible. Others suggest that somebody has vaguely tried to make them attractive or acceptable, but, even so, the design effort has almost always been insensitive and inept.

As a result, most of the heaters look tinny and unsubstantial. Evidence of poor construction is everywhere; exposed screw and rivet heads are the rule; raw edges of sheet metal not only add to the general unattractiveness but are dangerous as well.

Two designs are interesting, because they are for heaters of the same type, and because they show very

clearly both how and how not to design such an object. Exhibit A is the Arvin (larger of two models). This is a small heater which uses a fan to circulate air past incandescent wires. It has a main case of dirty cream color which has been shaped with skyscraper setbacks on both sides, building up to a central mass which has small vertical lines cascading over its top and down its face. A stamped, bulging, metal grille on the face is painted with some kind of aluminum paint, and so is the florid little control handle. Below, the protruding base is an unattractive mud-puddle color.

With relief we can turn to Exhibit B, the Everhot Air-Flow, a similar heater of comparable size. Here is a completely simple and rather pleasing shape; a two-piece case is joined around the center, the joint being covered by a small, shiny strip of metal. There are louvers on the back which are integrally formed by cuts and bends in the case itself. A metal handle on the top pulls up for carrying but is recessed into the top of the case when at rest. A red crackle finish on the case is reasonably pleasant. While not meticulously finished throughout, this is a straightforward design job.

There is in the group of heaters one design which clearly surpasses the others. This is the Surf Season-Air, a double-purpose mechanism in that the case containing the heating elements may be removed, leaving a regular ventilating fan for hot weather use. The entire heater is circular, reflecting the shape of the fan. It is supported at each side so that it may be tilted up or down, and its flow of air directed at any angle. This feature of adjustability provides a great advantage over the other heaters. The motor is housed in a circular case at the back and center of the fan; it has a neat switch on its top, and some small ventilating louvers on its back face, and these elements are well related to the whole. On the front of the heater are four shiny bars serving as the face grille, and these have been pressed into a strong and satisfying shape which adds to the generally substantial effect. Throughout there seems to be evidence of care in establishing shapes and proportions, and in making neat fittings and connections. With the justifiable exception of the wing nuts which hold the heater at the desired angle, there is no exposed hardware such as the screw heads and rivets on so many of the other models. One minor flaw is the metal handle which is too small and uncomfortable.



Pitched roofs can be built so that snow and ice won't slide off



Stairs leading off the kitchen offer a tempting — and dangerous — place for storing mops and brooms



Lugging bulky bundles over dark stairs is a frequent cause of falls

BUILD A HOME THAT'S SAFE

The sunken living room is, at the moment, enjoying a remarkable popularity. For a couple of hazardous steps, placed at one of the most heavily traveled spots in the house, the homeowner or apartment dweller seems willing not only to pay an added cost but also to take on the chance of contributing to the appallingly large number of domestic accidents that occur each year. Last year 32,000 people were killed accidentally at home and 130,000 were permanently injured.

Some of these accidents result from design fads — such as the sunken living room — which some people will always go for, whatever common sense has to say on the subject. But most of the causes of domestic accidents don't have anything to do with aesthetics. They involve simply faulty or thoughtless planning, and they can be eliminated before they start running up the accident rate — by ordinary careful planning.

There is nothing difficult about planning accessible storage space to avoid shaky steps and ladders, about installing efficient lighting systems, or making stairs safer than they usually are. And yet more often than not these are the things that are overlooked. Most low-cost houses, built from stock plans, for instance, are drawn up to catch the customer's eye rather than to provide a safe and livable home. If you are building or planning to build, here are some things to consider at the outset.

STAIRS AND STEPS. Falls account for most home acci-

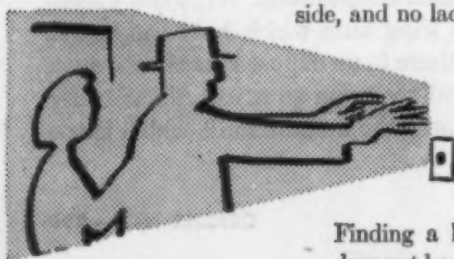
dents. Steps are the greatest single hazard; and about 30% of the home accidents that require hospitalization occur on outside steps. For example, there is usually an outside light to help a visitor navigate to your door in icy weather, but how often does anyone think to install a low-watt light to be left on for the returning family?

Basement stairs, usually steep and often railless, are particularly dangerous. Bulky objects which cut off vision often have to be lugged up and down them. And, if the stairs lead out of the kitchen, there is always the temptation to stand brooms, mops and pails on them. The best way to get rid of the cellar stair menace is to build a cellarless house (*Reports*, August). But where a basement has been included in the plan, the stairway should at least be equipped with a sturdy handrail, good lighting controlled from top and bottom, and a coat of white paint for maximum visibility.

Fatal falls on stairs from the second story occur most often to children under five and adults over 60. The danger of tripping there can be cut down by installing a strong handrail on each side of the stair. A double handrail, designed so that a child could reach the lower rung, would also be a great help. Landings, and stairs that curve so that they have a different width at different parts, are especially hazardous. Doors should not be built so that they open directly at either the top or bottom of a stair, and balustrades can be built so that children can fall neither over nor between the rails. There should, of course, be room for a gate at the top, if there

by **Simon Breines and Ralph Pomerance**

If windows are properly designed they can be washed from the inside, and no ladder is required



Finding a light switch in the dark does not have to be a major operation



A flat-bottomed bath tub is easy to get into and out of, and eliminates many falls





Do you turn on an outside light for guests, but stumble home in the dark yourself?

Children find stairs especially hazardous, and yet how often is there a railing they can reach?



You may think the sunken living room stylish — until you fall into it



are children who are too small to venture forth alone. As with the cellar stair, two-way lighting, controllable from either end, is a necessity here.

The attic is often a poor place for storage. The stair more often than not, is steep, shaky, and without a rail. Hauling things up and down in such a spot is bound to cause many a tumble that could have been avoided if proper storage space had been planned at ground level.

GOOD LIGHTING. Many falls could be avoided by eliminating dark passageways and providing easily controlled lighting all over the house. Rooms filled with furniture should not have to do double duty as traffic lanes, and rooms that are entered from several points should have three-way light switches near all entrances.

THE BATHROOM. Slippery tile provides perilous footing at best. But it is possible to see to it that a flat-bottomed bathtub, which is easy to get into and out of, is installed; that bath mats and bathroom rugs are nonskid; and that there is room to sit down while dressing. Light switches in the bathroom should be located away from tub and basin, to minimize the danger of shock.

THE KITCHEN. Cuts and burns are most apt to occur where kitchen working space is cramped. A good kitchen design eliminates dangerous balancing of pots and pans, the necessity for reaching over stove burners to get to a cabinet or shelf, and the danger of a window curtain's blowing over the burners. Sliding cupboard doors do away with the danger of a crack on the head from a cabinet door. Storage space for washing powders, disinfectants, etc., should be where small children cannot reach it. Swinging doors ought to be avoided — they provide excellent opportunities for collisions that involve dishes, hot liquids, etc.

LADDERS. Shelves for things in daily use should, of course, be put where you can get at them; a ladder or chair to extend your reach is often risky. Furthermore, if windows are correctly made and placed at the proper height from the floor, storm windows can be put on from the inside, and the windows washed from the inside, so that there is no need to place a ladder against the outside of the house. Properly designed roofs and gutters minimize any necessity for climbing up to remove leaves or ice; if the roof is pitched, it can and should be designed so that melting snow and ice will not slide off onto people standing at the entrance or on the walks below. A pitched roof not built with this in mind can be fixed up with a wire guard.

FIRE. It is possible to build a house that is fireproof but, even so, there are bound to be inflammable materials used in the furnishings. An inconspicuously installed fire extinguisher adds considerably to the protection of your property, and costs no more than, say, a built-in electric chime. Incidentally, manufacturers of fire extinguishers would do well to give some thought to improving the design of their product, to make it more acceptable to homeowners.

If you build or buy a non-fireproof frame house, have all chimneys and smoke pipes checked to make sure they are adequately insulated from combustible materials. This is especially important in old houses, because of the once-common practice of resting structural beams directly on the chimney. Have fireplaces and furnaces checked for fire hazard. Fire-retarding material for the basement ceiling and fire-stopping material within the structural framework are always wise precautions and not too much of a cost for the safety they provide.



Electric switches put near the basin or tub may shock you.



Poorly planned kitchens cause fires and burns



how to see your garden through the winter

Whether or not a plant sets safely through the winter and bursts into healthy growth in spring depends largely upon the plant's inherent qualities. If the plant is hardy for the area in which it is growing, it should be able to survive the winter well.

But any gardener with a little experience knows that the problem is not so simple as that. For even hardy plants are apt to die in winter if their basic requirements are not met. Winter is the time when poor culture during the previous growing season finally is shown up, and no amount of care in mulching and in protecting plants from winter hardships will help if the plants go into the cold weather in a seriously weakened condition.

One common cause of winter killing is a lack of pest control during the previous summer. Other causes are drought and starvation. But misplaced zeal is as harmful as neglect. Heavy fertilization of woody plants late in the season often forces much soft growth which is liable to be killed when winter comes. This applies especially to roses. Over-zealous pruning in fall is an often unsuspected cause of winter fatalities.

Frost heaving, the great winter bugbear, is usually explained as caused by alternate freezing and thawing of the surface soil. But heaving, which pushes plants up and out of place, in the case of established plants, is usually preceded by the rupture of the deeper roots by ice formation. And the ice would not have formed there in the first place unless drainage had been poor. Sometimes this condition can be alleviated in part by making shallow surface trenches to lead off water. A minor grading job next spring may be enough to correct poor drainage, if it was due to the collection of surface water. But if the area is moist even in dry weather, only tile or permanent drainage ditches will remedy the situation.

It is important that all kinds of evergreens should go into the winter with their roots moist. In the perfect situation, with a favorable season, evergreens would need no extra attention, but often they are planted in rather dry places. It is wise to water them liberally before freezing weather, and again, if possible, during winter thaws, so that the sunny, windy days of late winter will not find them unable to make up for the moisture lost by transpiration.

Attention to all these cultural details is the beginning of successful wintering of hardy plants, and it could be the end of it too, if every woody and herbaceous plant on the place were perfectly fitted to the climate, the exposure, and the soil and moisture conditions we can provide. By expert selection and planting this might be accomplished. But many northern gardeners like to grow strawberries, broad-leaved evergreens, hybrid tea roses, or such common but fussy garden perennials as chrysanthemums, and they often set new plants in the autumn. These are only some of the plants that need protection in northern states.

The annual fall of leaves suggests that nature's method is to apply a mulch. A snow blanket, if it is early and deep all winter, makes the perfect mulch. This is why some plant species that die in Pennsylvania are hardy in Canada. But where snow is not dependable, mulching must be deliberate.

Mulching

In deciding whether to mulch early or late, the usual rule is to wait until the ground is frozen hard because, we are told, the purpose of the mulch is not to keep the soil warm, but to keep it frozen in order to prevent alternate freezing and thawing. But this rule, like many others, is subject to modification.

Probably the ground never freezes as hard and deep under a mulch as where it is left bare, and it is certain that a mulch applied before the ground is frozen allows root action to continue for a longer period, perhaps for an additional month. This is important for all kinds of newly set plants — whether trees, shrubs, or perennials — because they need the extra time to anchor themselves firmly in the ground. The soil around fall-planted perennials should be mulched immediately after they are set, and a loose covering put over the crowns later.

Strawberries should be mulched early, as soon as cool weather checks growth; but the main purpose in covering them is to protect the crowns from temperatures of 16 degrees or lower. Exposure at such low temperatures means reduced berry production the following year.

Early mulching is important for evergreens. The greatest cause of winter injury to evergreens is a sudden rise in temperature in late winter when the ground is frozen solid. An eight- to twelve-inch mulch applied early, after a thorough watering, keeps the soil warm so that the roots can respond to changes in the weather. Early

mulching is particularly important for broad-leaved evergreens, if you do not follow the approved practice of leaving the mulch in place all the year 'round, to keep the soil cool in summer and warm in winter. If evergreens are mulched after the ground is frozen deeply, thawing in spring may be delayed, with disastrous results.

In the flower garden, such hardy subjects as peonies and phlox need no protection, once established. Japanese anemones need protection the first year, but not afterwards. Hollyhocks and delphiniums do better without any covering, except that the latter may be given a coating of sifted hard-coal ashes to protect or discourage the new growths which are often made in late winter. But many gardens contain such a mixture of hardy, tender and newly set plants that it is easier to cover them all than to try to protect scattered individuals. In this case, it is possible to spread three or four inches of loose mulch over the garden, or to lay evergreen boughs, after the ground is frozen hard.

A few plants will rot if the crowns are wet in winter. Chrysanthemums, red hot pokers (*Tritoma*) and many choice rock plants are examples. These plants must have good drainage, but it also helps to cover the crowns with roofing paper. In caring for outdoor chrysanthemums, however, it is usually better not to try to winter the plants in the garden. In any case, chrysanthemums must be lifted for division in spring, and some very fine kinds are not hardy. Therefore, try putting a clump of each kind in a cold frame for the winter, and replant them in the spring from rooted cuttings or divisions.

Caring for roses

Healthy, amply watered roses have the best chance of going through the winter with most of their wood intact. Probably every northern gardener who tries to grow tender roses understands the method of hilling up to them for a foot or so with soil, and adding a mulch after the ground is frozen. But this always results in some loss of wood.

The modern idea is to save as much wood as possible, because more old wood means more flowers the following year. Rosarians have developed a new and superior technique which preserves all the wood of tree and tender bush roses. With a spading fork the plants are lifted on one side and then bent to lie prone on the ground, where they are staked down, each row making a continuous line. The roses are covered with roofing paper with soil and leaves over that, or with tough sods, thus making air tunnels which run the length of the beds; and this free circulation of air is important.

Tender climbing roses can be completely protected by taking them down, spreading them on the ground, and covering them with earth; but this is a tedious job. Tying evergreen boughs among the canes is easier, and is enough protection for hardier climbers except in very severe climates. It is no longer considered good practice

to tie up roses in straw or burlap. And in getting them ready for winter be sure to cut off all waving branches.

What to use for mulching

The prime requisite of a mulch is that it be of a loose nature so that it won't become sodden — except in cold frames, where the sash gives protection from rain and snow. The mulch should also be free of weed or grain seeds.

Where plenty of leaves of the right kind are available, the problem of what to use for a mulch is solved. Leaves that keep their crispness all winter, like oak leaves, are best. Soft-bodied leaves, especially those from maple trees, should not be used, because they are likely to take up a great deal of water and freeze, forming an impervious covering that may even prove fatal to the plants they were supposed to protect. Instead of using maple leaves as a winter mulch, rake them into a flat-topped pile and use them next summer as a summer mulch. To keep leaves from blowing, lay on a few boards or better, evergreen boughs. Pine needles make a good mulch for evergreens, but are too acid for the flower garden, and rather too compact.

Besides leaves, a great variety of mulching materials are known in different parts of the country. Most of these are products of local agriculture, and the prudent gardener will use what is abundant in his section instead of having some well-advertised material shipped halfway across the continent.

Straw is one of the best materials, but if there is any chaff, discard it. Marsh hay is excellent, but not ordinary field hay. Never use rye straw or timothy hay for mulching strawberries, because the by-products given off in the process of decomposition are toxic to these plants. The number of berries per plant and the average weight of the berries are much smaller than they are when other materials are used. Rye straw is actually worse than no mulch at all. Soy bean refuse is best; excelsior, which yields fewer but larger berries, is next best. Buckwheat hulls make a good mulch (but not for strawberries) if held down with boards or evergreen boughs.

Tobacco stems, which can be bought cheaply by the bale in some sections, are a boon to gardens where field mice do damage, because the stems act as a repellent. Use them over tulip and other bulbs favored by mice, and around shrubs whose stems may be girdled.

Peat moss is satisfactory, though too expensive for a deep mulch, but it can be re-used. Never dig it in, in large quantities, or for more than two years in succession, because it makes the soil too dry and fluffy.

Floravate, made from sugar cane, is not widely distributed, but makes an excellent mulch. It is sterilized, free of weed seeds and insect pests, and can be dug into the soil in spring.

Glass wool is expensive, and, though a good mulch, is dangerous to use without gloves and a respirator.

HEART DISEASE

New techniques will help cut the toll; but fundamental causes of the commonest types await discovery

In Europe and Asia, Africa and India, even in many parts of the Western hemisphere, tens of millions of people are sick or dying of diseases which medical science learned to control decades ago. In these parts of the world, malnutrition, along with tuberculosis, pneumonia, diphtheria, typhoid fever, and other infectious disorders are the major health problems.

In the United States, the important causes of sickness and death are not these ancient killers. Today, the great public health problems of the nation are the chronic diseases, especially those of the heart and the circulation — the cardiovascular diseases.

In 1946, more than a half million men, women and children in this country died of cardiovascular disease. The figure is about twice that for the number of Americans killed in battle in World War II. Heart diseases cause three times as many deaths as cancer, six times as many as accidents of all kinds, eight times as many as pneumonia, eleven times as many as tuberculosis, and 500 times as many as infantile paralysis. At the present time at least one out of every 20 persons is disabled to some extent by disease of the heart or blood vessels.

A major cause of the tremendous increase in the number of people afflicted with cardiovascular disease is general aging of the population. The elimination of infectious diseases enables people to live longer — and to succumb either to old age or to heart disease.

Little can be done about growing old, but some things can be done about heart disease, and much more could and should be done. It is a curious and disturbing fact that much less energy and money are applied to the prevention and treatment of cardiovascular disorders than to disorders which do much less damage.

The important causes of heart disease are arteriosclerosis, hypertension, rheumatic fever, syphilis, bacterial endocarditis, and congenital deformations — in order of decreasing frequency. The first three, taken together, are responsible for about 90% of all cases of heart trouble. Unfortunately, less can be done for this group than for heart disease from the last three causes.

Many congenital heart disorders are on the way to being relieved or cured through the development of new techniques of diagnosis and surgical treatment.

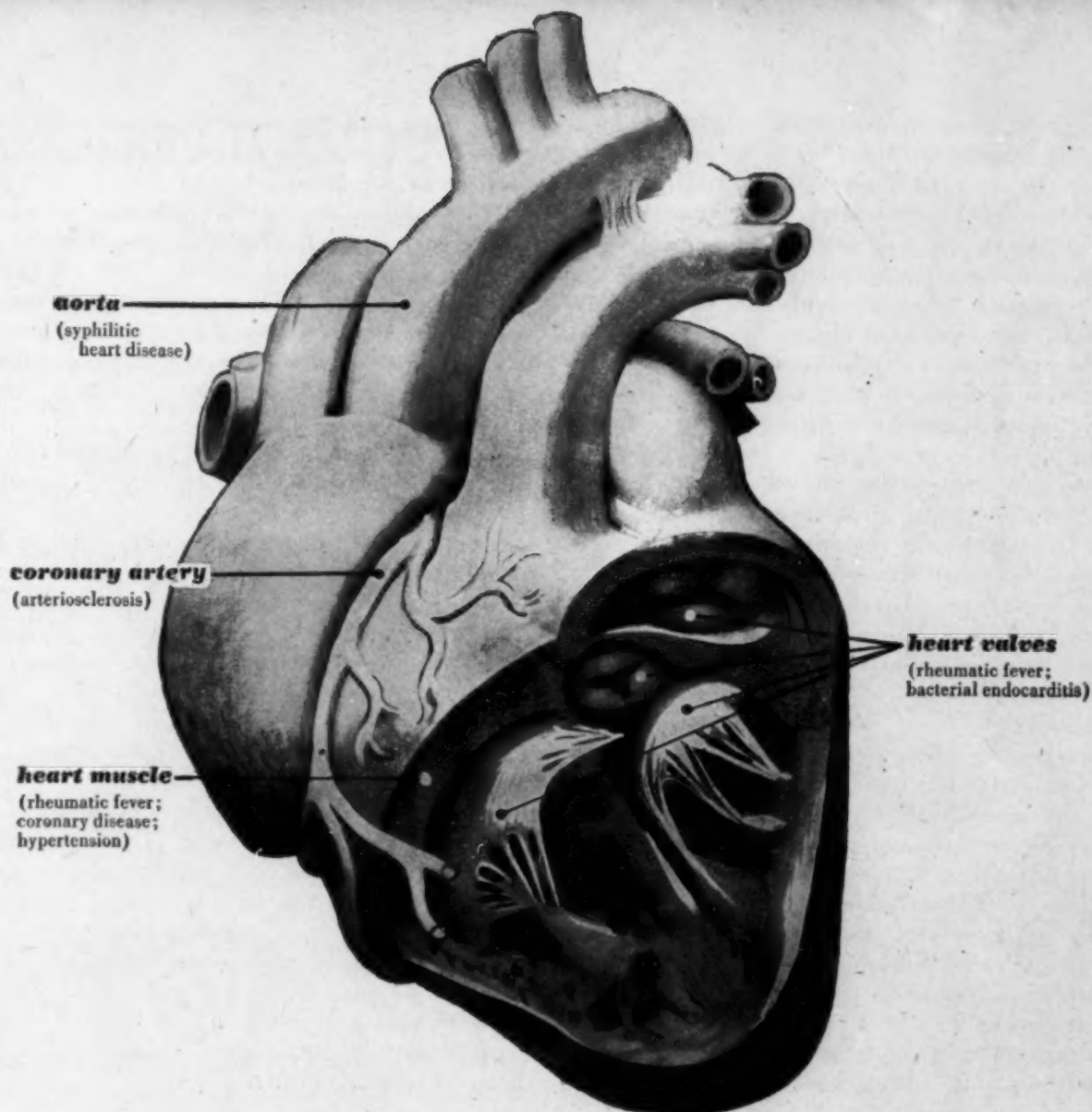
Abnormal development of the heart chambers, or blood vessels, characteristic of congenital heart disease, begins in the foetus during pregnancy. Formerly, accurate diagnosis of the type of deformity was difficult. Even when the precise structural anomaly was defined by painstaking physical examination, nothing could be done about it. The discovery by Dr. Robert Gross, a few years ago, that one type of anomaly, "patent ductus arteriosus," could be cured by surgery, gave enormous impetus to the study of disorders of this type.

Other operations for congenital heart disease have been tried with fair success. The use of newer diagnostic techniques such as visualization of cardiac chambers and blood vessels with diodrast (an iodine-containing substance that is radio-opaque) and the introduction of catheters into the blood vessels and chambers of the heart, have enabled the heart surgeon to undertake his task with greater precision.

There are indications that a general preventive program against congenital deformities of the heart and other organs may soon be possible. A few years ago, Drs. Gregg and Swan of Australia reported that mothers who got German measles during the first two months of pregnancy usually gave birth to infants suffering from multiple congenital defects. This same observation has since been made by other physicians as well. German measles is caused by a virus, and it has been suggested that other virus diseases attacking mothers during the early months of pregnancy may similarly cause congenital anomalies.

The discovery of methods of prevention of virus disease may also solve to a large extent the problem of congenital defects of the newborn. Until then, during the early months of pregnancy, women should avoid exposure to children or adults suffering from contagious virus diseases such as German measles. *There is a growing medical belief that a woman who acquires German measles during the first two or three months of pregnancy should have the pregnancy terminated by an induced abortion.*

The greatest achievement so far in the medical treatment of heart disease occurred when the antibiotics,



MAIN SITES OF INVOLVEMENT OF THE HEART BY MAJOR HEART DISORDERS

penicillin and streptomycin, were found to cure bacterial endocarditis. Inflammation of the heart valves and lining of the heart by the streptococcus, pneumococcus, and other bacteria formerly meant sure death. Today, the appropriate use of antibiotics can cure most cases of bacterial endocarditis.

Syphilitic heart disease is a preventable disease. Here, too, penicillin can cure the infection before the heart and blood vessels are affected. Even after syphilis has involved the aorta, proper treatment can halt, if not cure, the disease.

The commonest types of heart disease, accounting for more than 90% of all cases, come from rheumatic fever, hypertension and coronary artery arteriosclerosis. For these disorders, medical research is as yet unable to provide the valuable methods of prevention or treatment available for other heart disorders.

In fact, for the prevention of rheumatic fever — the

most important cardiac disease of children and adults under 40 — research has shown that medical techniques alone are less important than living conditions. The connection between bad housing and rheumatic fever is one of the most important single facts emerging from studies of the disease.

Streptococcal infections of the nose and throat are undoubtedly an important factor in determining onset and recurrence of rheumatic fever. Crowded living quarters increase the opportunities for cross-infections of streptococci between members of a family. Thus, it is quite likely that one result of the failure to provide decent housing for millions of American families will be an increase in the incidence of rheumatic heart disease, especially among low-income families.

Hypertensive heart disease (high blood pressure) is as yet an unsolved health problem. A small percentage of cases is caused by chronic kidney infections or tumors

of an endocrine gland. Surgical removal of such kidneys or tumors has resulted in cure of the hypertension. In most cases, however, no cause can be discovered for the hypertension (called "essential hypertension") and treatment has to proceed along conventional lines. Rest, psychotherapy, use of sedatives, and diets low in salt content often lower blood pressure and ease the strain on the heart and other organs. In certain selected cases, the operation of sympathectomy (cutting sympathetic nerve fibers to the blood vessels) performed by specially trained surgeons has helped to relieve symptoms and possibly to prolong life.

Perhaps most important in the catalog of heart diseases is coronary artery arteriosclerosis, causing the disorder known as angina pectoris and coronary thrombosis. Since coronary artery disease has ended the careers of so many useful citizens, it is surprising that so little has been done to find ways of controlling or mitigating the effects of arteriosclerotic changes in the blood vessels.

In recent years, it has been observed that coronary artery disease can affect young people as well as the middle-aged and older. Under 40, the disease is often familial and associated with an increased amount of cholesterol in the blood and with a low basal metabolic rate (hypometabolism). Another remarkable and as yet inexplicable fact is that, under 40, the ratio of males to females with coronary disease is about 25 to one. Over 40, the ratio is much lower, but yet remarkable for the greater frequency of the disease in males. A host of other questions have still to be answered before arteriosclerosis becomes a preventable disease. Why, for example, is it rare in the Chinese? Why is it more frequent

in diabetics and the obese? What role does diet play? How do emotional stresses and life situations affect the development of arteriosclerosis?

These and other questions related to arteriosclerosis are of enormous importance to the millions of persons making up an aging population. They will not be answered by one investigator or even by one team of investigators. In this field, as in many others, the advances and the discoveries will come out of cooperative efforts on a large scale, involving many medical workers in many countries.

Until fundamental causes are found, there isn't much that can be done in the way of direct and specific curative measures for the three big types of heart disease. Treatment aimed at the relief of the suffering and the debilitating effects caused by these diseases is something else again. And here the picture is somewhat happier. The appropriate use of rest, drugs, diets, physiotherapy and psychotherapy can go a long way toward relieving symptoms and restoring working capacity.

Better hospital and convalescent home facilities for children with rheumatic fever have proved of great value in treatment and rehabilitation.

As for the future, more intensive research financed by the Government as well as by private endowment is essential. The educational activity of the American Heart Association can have real effect and should be supported. One step of great immediate value would be to make adequate medical care available to all by means of national health insurance. That alone would bring thousands of persons with heart trouble under medical care sooner, so that treatment could begin when it would be most effective.

TRUE OR FALSE? *mineral oil is a harmless laxative*

Mineral oil is a drug and like any other drug is helpful when used judiciously and harmful when not. Therefore, the statement that it is harmless is both true and false.

One drawback to mineral oil as a laxative is the fact that the oil absorbs fat-soluble vitamins — chiefly vitamin A, carotene and vitamin K — from the intestines. Another is that the oil may leak from the anus or form a pool in the rectum and lead to inflammation and other disorders of the anal-rectal area.

Mineral oil as salad dressing or as a substitute for other food oils in a weight reducing plan is definitely harmful since it will mix with other foods, interfere with their digestibility and, above all, prevent the absorption of the fat-soluble vitamins A and K, sometimes leading to a deficiency of these vitamins.

The same is, of course, true when mineral oil is *improperly* used as a laxative. "Improperly" means taking the mineral oil with meals or shortly after meals or taking more than an ounce or so a day.

Anyone who requires a laxative and who has found mineral oil helpful as a means of providing more bulk to the stool or to lubricate a hard stool should determine by trial and error just how much oil is necessary for an easy movement. For some, this may mean one tablespoonful every third or fourth night. For others, it may mean one tablespoonful every night. If mineral oil is thus used in moderate doses with due consideration for individual need, and taken just before retiring, on an empty stomach so that it does not mix with food, there need be no fear of the complications of vitamin deficiency or rectal trouble.

Mineral oil is one of a group of laxatives useful for certain types of chronic constipation. Ordinary U.S.P. mineral oil (a mixture of heavy and light oils) is as good as and cheaper than certain brand-name varieties such as *Nujol*.

There is no appreciable advantage in using heavy rather than light mineral oil.

Vaccines for the flu

A major flu epidemic is not expected this year,

but some advances have been made in preparation for the next one

The "cold," "grippe," and "flu" season has arrived and will reach its peak during the winter and early spring. "Colds," "grippe," and "flu" are used as blanket terms to designate such respiratory infections as the common cold, acute pharyngitis and tonsillitis, acute laryngitis, acute bronchitis and influenza. The first and last of these are caused by viruses. The others may be caused either by virus or by such bacteria as the streptococcus. Often virus and bacteria play a joint role. And to make confusion deeper, doctors often have difficulty in determining whether an infection is intrinsically a common cold, or a sore throat, or an attack of flu, for symptoms of each of these disorders may appear in all types of respiratory infection.

Based on observations over a period of twelve years, virus experts do not expect a major epidemic of flu to appear this year in the United States. There was one last winter, caused by the so-called A type of virus. Epidemics of the A type tend to appear about every two years and thus the next epidemic may be expected in 1948-49. B virus, the other important variety, tends to recur in epidemics about every four years. The last epidemic caused by B virus was in 1945. Thus, if the pattern is followed, the winter and spring of 1948-49 may see a recurrence of both the A and the B flu epidemics.

The difficulties of prevention

Before the end of next year, it is possible that preventive measures against flu will be on a much sounder footing than they are now. The fact now is that although influenza A and B virus have been isolated and cultivated in the laboratory and vaccines against them have been commercially available for several years, the results of vaccination have been somewhat disappointing. The disappointment stems from the fact that Virus A and Virus B are not single viruses but, in fact, each comprises several types of virus — all related to each other but different enough so as to evoke different responses when they invade the body. At present Virus A vaccine will protect only against certain subgroups of Virus A. Virus B will protect only against certain subgroups of Virus B.

An experience at the University of Michigan during the past year is illustrative of the present difficulties in flu vaccination programs. Several thousand students were vaccinated against A virus before the onset of the



flu season. An equally large control group was not vaccinated. During the epidemic which subsequently appeared, the incidence of flu was the same in both groups. The reason given for the failure was that the flu vaccine used protected only against *some* of the A viruses and not against all of the subtypes. The 1946-47 epidemic was caused by a subtype of A virus against which the vaccine offered no protection. Thus, unpredictable virus invasions may upset the best-laid plans of virus scientists.

The fact that vaccination against influenza is in a highly experimental stage at present should not cause undue anxiety. Epidemics of flu that have occurred since 1918 have not been severe. Almost every winter sporadic cases occur and are effectively treated by the customary measures — bed rest, fluids, aspirin, etc. Even during epidemic years, cases have been mild. It is only in the aged or chronically ill, or in the very young child or infant, that an attack of flu has potential dangers. Even in this group, good individual care and the skillful use of penicillin or sulfa to combat complications caused by secondary bacterial invaders will result in cure of the influenza and easy convalescence.

In view of the qualifications that must be made about

flu vaccination at present, and equally in view of the generally moderate nature of the ailment under normal treatment, there is no reason for most people to have themselves vaccinated. Exceptions might be made for those groups or individuals in whom even temporary incapacity would constitute a serious problem.

Three main properties

If and when the vaccination is undertaken, three main properties of the vaccine should be kept in mind. First, the vaccine probably offers real protection for a period of only about two months. If taken at the onset of an epidemic, it would build up antibodies against the

virus in sufficient amount in about a week after inoculation and should provide protection over the major period of the epidemic. Secondly, the vaccine used should be of a type that will provide protection against the invading virus. The latter is usually identified by virus scientists very quickly after an epidemic appears. Finally, the vaccine may cause mild to severe allergic reactions in some persons.

As for "cold" vaccines, it is an established fact that they are made up of mixtures of heterogeneous bacteria and that they offer no protection against infection by the virus of the common cold. Whether taken by mouth, injection or nasal spray, they will not prevent colds.

Tests for pregnancy

Several laboratory methods are quite fast and reliable

Because the diagnosis of an early pregnancy by physical examination is often difficult, laboratory tests which permit a rapid and early diagnosis have become popular in medical practice. Most often these tests utilize the fact that increased amounts of certain hormones are present in the urine of a woman who is pregnant.

Most important is the "gonadotropic" hormone, one that stimulates the ovary to form eggs. A small amount of this hormone, secreted by the pituitary gland, at the base of the brain, is normally present in the urine of the nonpregnant woman. But a larger amount is present in the urine of the pregnant woman, and in this case the hormone is secreted by a newly formed endocrine gland, the chorion — a thick membrane formed about the fertilized egg in the mucous membrane of the uterus. Gonadotropic hormone from this source appears in the urine about seven to ten days after fertilization of the egg has occurred.

The original Aschheim-Zondek test, named after two famous endocrine gland investigators, involves the injection of urine into immature mice. If the urine contains the chorionic gonadotropic hormone, there is a marked and characteristic reaction in the ovaries of the mice, detectable in about 96 hours. In a simpler test, devised by Drs. Friedman and Lapham, and called the Friedman test, the urine is injected into the veins of a female rabbit. If, after 48 hours, the ovaries are found to be pink or red — indicating ovulation — the urine contains gonadotropic hormone. A third pregnancy test, the latest and most rapid, was developed by Drs. Frank and Berman in 1941, and employs immature female rats. This test enables a diagnosis of pregnancy to be made 24 hours after subcutaneous injection of the urine.

These three tests are estimated to have an accuracy of about 99% on the positive side; that is, only about one positive urine test in a hundred is likely to be associated with nonpregnancy. Such rare false positives are apt to occur during the menopause, or where hyperthyroidism, severe diabetes mellitus, or some other rare disorders are present.

A negative pregnancy test, on the other hand, is more difficult to interpret. It usually means that there is no pregnancy, but cases have been observed in which a test, negative early in pregnancy, showed positive later. By and large, a positive test almost always signifies pregnancy, while a negative test is less likely to be significant.

There are other pregnancy tests. These use the South African frog as the test animal, or employ chemical methods, or are based on examination of vaginal secretions and cells. But such tests are neither as accurate nor as economical as the Friedman and Frank-Berman tests.

The uses of prostigmine

In order to distinguish between early pregnancy and delayed menstruation caused by emotional strain, fatigue, etc., doctors often use intramuscular injections of prostigmine, or neostigmine as it is also called. This drug, acting through the nervous system, may induce a flow if the menses have simply been delayed; it has no effect if pregnancy has occurred. Because some non-pregnant women may not have their menstrual flow even after large doses of prostigmine, the injection of this drug is not always a valid test; it is of value only when it causes a flow.

The drug, it should be noted, will never induce abortion in a pregnant woman.

MEAT

Are a handful of big packers manipulating the market? They have in the past, and the Dep't of Justice has called a grand jury investigation to see if they're doing it now

The high 1947 price of meat is no news to the housewife. Rising faster than the cost of living, faster even than other food prices, beef and pork increased 83% and 90%, respectively, from V-J Day to the summer of 1947. Further spectacular increases followed in September.

Are the high price of meat and the recent price increases merely the natural and inevitable result of the law of supply and demand? Is it true, as the American Meat Institute alleges, that "supply and demand factors are reflected promptly in meat prices and, in turn, in livestock prices, since there is keen competition among some 4000 commercial slaughterers to buy livestock, over whose volume the meat-packing industry has no control"?

Or is it true, instead, as the U. S. Department of Justice seems to suspect in calling for a Chicago grand jury investigation of the meat-packing industry, that the high price of meat is in part at least a planned occurrence, resulting primarily from the conscious decisions of the four major meat packers who control at least half of our national meat supply?

The free competitive market in theory

In June 1946, when OPA controls were about to expire, the high production and moderate prices which would follow a return to "free competition" were widely touted. The National Association of Manufacturers took full-page ads to assure us:

"If OPA is permanently discontinued, the production of goods will mount rapidly, and through free competition prices will quickly adjust themselves to levels that consumers are willing to pay. . . . Supply will quickly catch up with demand. Prices will be fair and reasonable to all. Quality will be improved. . . . *Send for a booklet that explains how price control causes inflation.*"

Applying this thesis specifically to meat, the American Meat Institute announced a few months later: "It is the earnest desire of the meat-packing industry that,

as quickly as possible, consumers again may find on retail counters everywhere the kind of meat they want, when they want it, at fair competitive prices . . . like it used to be just a few years ago. Remember?"

As pure theory, the "free competitive price" argument has quite an appeal. Almost without human intervention, the theory alleges, supply and demand assure that the farmer will get every possible penny for his livestock, and that consumers will pay the lowest possible price for meat; there will always be as much meat as consumers really want, and enough consumers to eat all the meat the farmers produce. The diagram at the top of page 410 shows how it's supposed to work.

What's wrong with the picture?

Actually, the marketing of meat bears as little relation to this abstract picture as a surrealist Dali painting bears to the real world. The objects are there, all right, but the relationships are fantastically distorted.

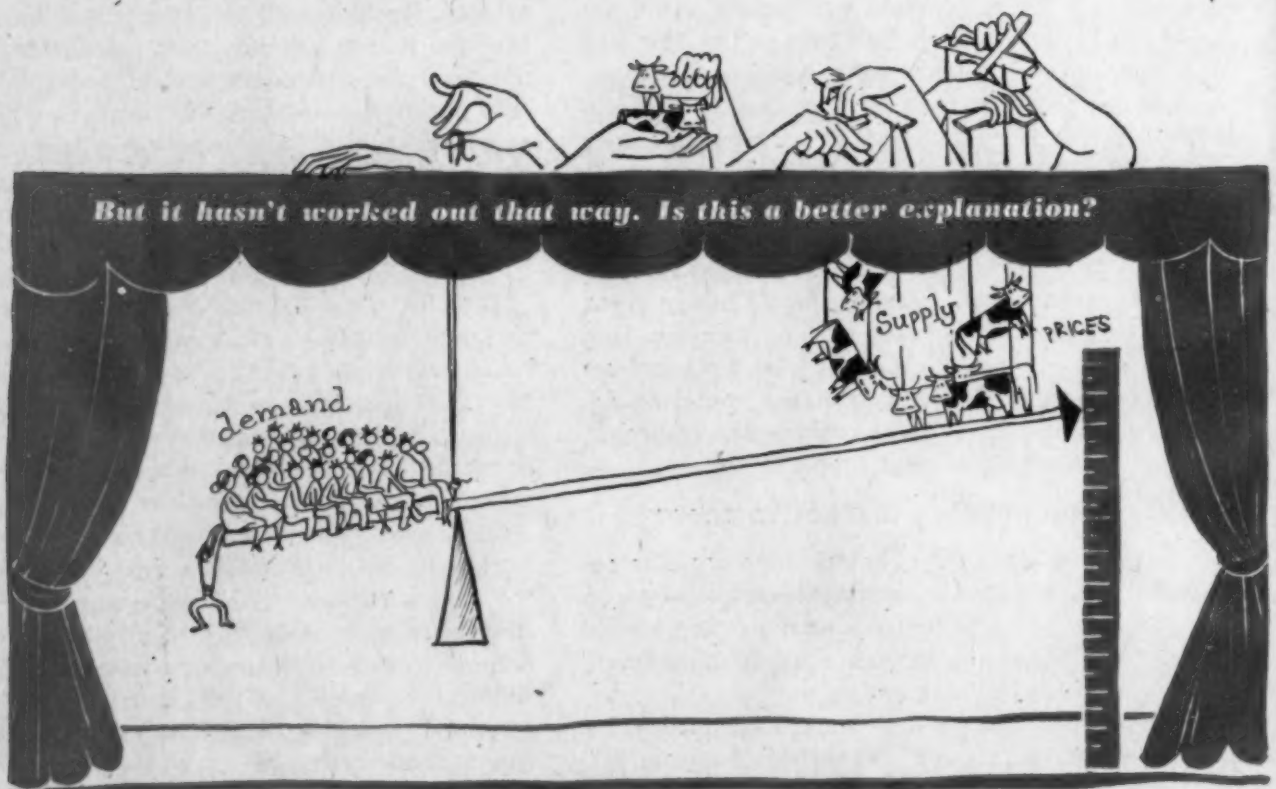
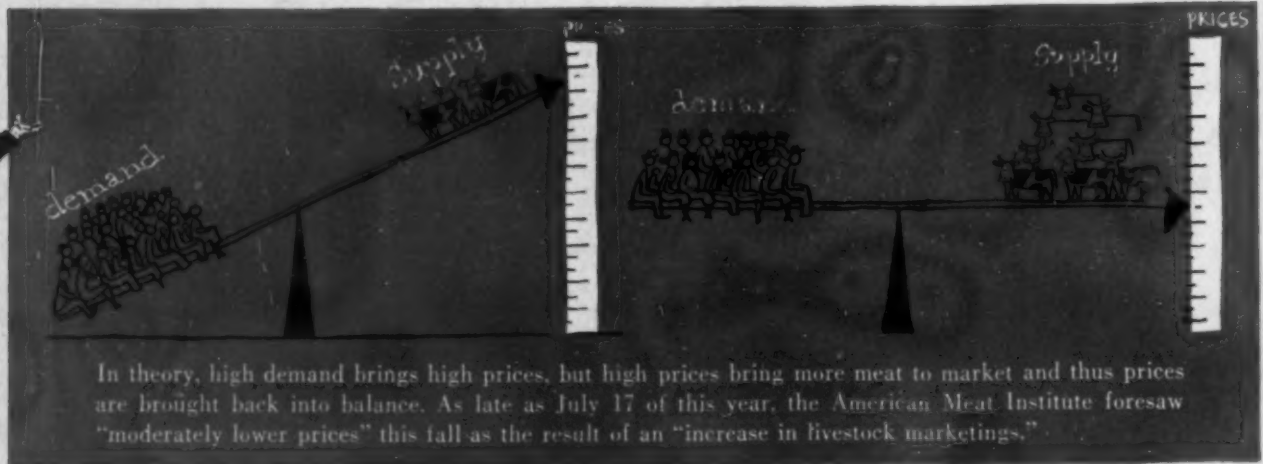
Just how the present market mechanism works is not altogether clear; the last thorough meat investigation was conducted in 1919, and there have, of course, been changes since. The Chicago grand jury, if it does its work well, should throw more light on the details. But the *basic* structure of the packing industry has not changed in many decades. The present machinery is a natural outgrowth of earlier stages whose history is thoroughly documented. Pending the outcome of the present investigation, accordingly, we can only take a look at the record.

At least since 1885, the meat-packing industry has been dominated by a handful of firms. The very early investigations spoke of the "Big Six." In 1919 it was the "Big Five." Today, we are left with the "Big Four" — Swift, Armour, Wilson, and Cudahy. Approximately half of all the meat retailed in the United States flows through these four packers.

Even if this were the end of the story, we could hardly

Meat prices: supply, demand, and the packers

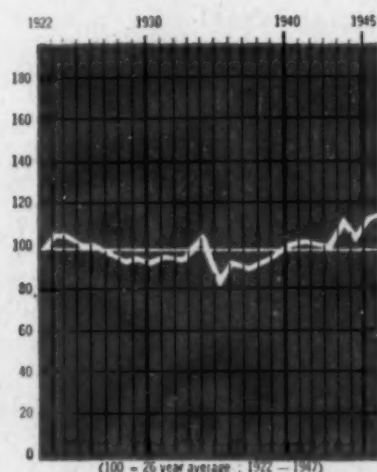
According to the packers, supply & demand explains the meat muddle—like this



Four packers handle half the meat business—enough to let them call the turns for the whole industry. After World War I an exhaustive investigation by the Federal Trade Commission showed that the major packers were using their power to manipulate the market to control supply, keep prices and profits high. Now, in a similar period after World War II, the behavior of the industry and the market has forced the Department of Justice to institute a new investigation.

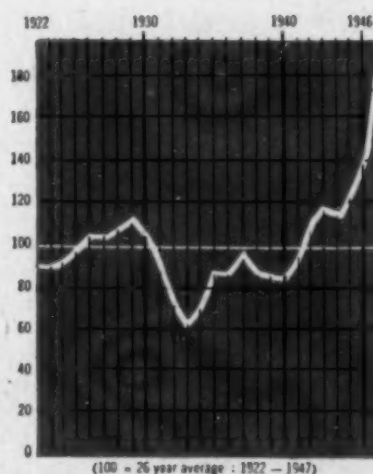
Meat consumption (PER CAPITA)

Americans are meat eaters. Despite war, inflation and depression, per capita consumption of meat varies only moderately.

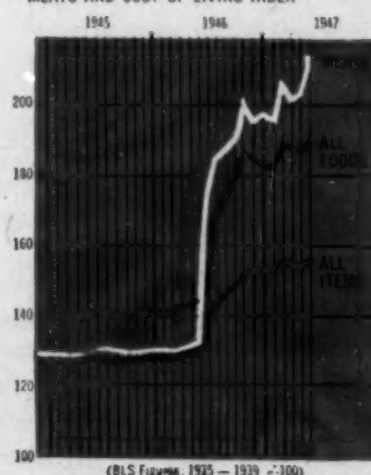


Meat prices

Meat prices fluctuate widely; furthermore, a slight increase in demand may bring a disproportionate increase in price.



MEATS AND COST OF LIVING INDEX



Meat prices have risen more rapidly than food prices generally, or than the cost of living.

call such a market "free and competitive." Whenever a few units in a market become so large that their individual decisions can affect supply and alter prices, even temporarily, the market is no longer "free." Buyers and sellers in such a market must base their decisions not merely on what farmers and consumers are going to do, but on what Armour, Swift, Wilson and Cudahy are going to do. And in guessing the answer to that question, the "Big Four," of course, have an unlimited advantage.

But the evidence is clear that, from the beginning, the dominant packers did not rely solely on their individual size and power. They combined. Thus the special Senate Committee to investigate meat prices in 1890 reported unanimously its finding of "an agreement to refrain from competition" and "collusion with regard to fixing of prices." It was this report which gave the final impetus to the enactment, in 1890, of the Sherman Antitrust Act, designed to eliminate just such agreements and collusion among supposed competitors.

The Sherman Act failed woefully; the collusion was merely continued on a more secretive basis. From 1893 on, representatives of the major packers met secretly every Tuesday afternoon at two — in a suite of offices rented in the name of a lawyer — and regulated every aspect of the livestock and meat industry on a week-to-week basis. The prices to be paid to farmers, the prices to be charged at retail, the proportion to be purchased by each packer in each primary market, the proportion to be shipped by each packer into each consuming area — all this was worked out in minute detail by five or six packers' representatives sitting around a table. Everything was hush-hush. The names of the packers never appeared in the records; they were identified by code letters or numbers. Individuals similarly appeared under aliases.

In May 1902, the Department of Justice at length got around to the packers whose misdeeds had been a prime target of the 1890 Sherman Act. An injunction was procured, and made final by the U. S. Supreme Court in 1903.

But at the same time, the Court in other decisions opened up a loophole in the antitrust laws to which the packers now turned. They actually proposed to merge their "Big Five" holdings into one mammoth meat trust, the equivalent of U. S. Steel in the steel trade, and to buy up as many independents as possible for merger into a "National Packing Company." Detailed corporate plans were drawn for this gigantic undertaking; an \$80,000,000 loan was in process of negotiation and the process of buying up independents was actually under way — when someone got cold feet.

The big merger was cancelled, but a "National Packing Company" was nevertheless formed, and began business. Into it were merged the many independents whom the big packers had been buying up. The National

Packing Company, in turn, was owned by the dominant packers jointly, in precisely the proportions into which they had previously divided up the business at their secret meetings every Tuesday at two.

The National Packing Company, in fact, functioned as a second loophole in the Sherman Act through which the major packers evaded the 1903 injunction. Every Tuesday afternoon at two, representatives of the same packers continued to meet in the same rooms, and discuss the same business. But now they met as members of the board of directors of the National Packing Company. Secret codes were still used, and the records were maintained in the traditional "Little Black Book" that somehow turns up in every financial investigation.

Another decade went by before the Department of Justice caught up with the "National Packing Company" device; and while a case was being prepared, the packers in 1912 "voluntarily dissolved that particular combination."

In 1919 the Federal Trade Commission reported on its investigation of the packers, and, as might be anticipated, it found the basic collusion first uncovered in 1890 still going on — but with certain significant improvements.

Efficiency in collusion

A quarter of a century of "cooperation" in the control of price, distribution, and other factors, the FTC found, had tremendously simplified the *amount* of collusion necessary to assure packer control. The certainty that sooner or later the antitrust investigators would be back also tended to tighten up the techniques of collusion, and to streamline them. By 1919, though "pool" operations were still managed by the same lawyer who had rented the secret suite in 1902, the cumbersome old mechanism of weekly meetings, allocation of markets, fines, rebates and drawbacks, etc., were as outmoded as the bustle. All that was necessary was a simple, fingertip-control system of collusion on two points: the *margin* between meat prices and livestock prices, and the *proportion* of livestock assigned each packer.

The uniform margin is simply a formula for translating livestock prices at Chicago into meat prices at wholesale or at the corner meat market. By making uniform allowance for by-products, and by using the same methods of calculation, the packers had no need to concern themselves at all with agreeing on wholesale or retail meat prices. Since all used the same basis of calculation, wholesale and retail meats automatically followed the trend of the Chicago livestock market.

The proportionate buying system also made agreement on livestock prices very simple. Since each buyer in each market was limited to an agreed-upon proportion of total purchases — a proportion worked out and abided by to the last tenth of one percent — there was

little danger of one packer's outbidding another packer.

The 1919 FTC investigation was followed by a "consent decree," which eliminated some of the more flagrant market abuses. In particular, the packers were forced to divest themselves of the stockyards companies, which they had owned openly or controlled secretly.

Ancient history or today's reality?

Nevertheless, there is substantial reason to believe that neither the "consent decree" nor more recent developments have changed the basic pattern of the packing industry.

First, the practice of calculating *margins* uniformly continues. The major packers use the same agreed-upon formulas for assigning costs to by-products, etc. This practice is defended on the ground that otherwise, one packer would assign a low arbitrary cost to lard, another a low arbitrary cost to hides, etc., and that "disruption" would ensue.

Unfortunately, what looks like "disruption" from the packers' point of view is actually the same "free play of competitive forces" which is supposed to guide consumers and livestock farmers. By agreeing on margin formulas, the packers are in effect agreeing on wholesale and retail meat prices.

The uniformity achieved is not, of course, price uniformity as such. Rather, it is uniform *price relationships*. In particular circumstances, one packer or one retailer may undersell another, and the consumer or meat retailer may reap an advantage by trading with one rather than the other. But the *relationship* remains stable; there is seldom incentive for the retailer, for example, to *shift* his business from one large packer to another. And such incentive is the essence of competition.

Is the second element of packer control of prices, namely *proportionate buying*, also still present? That is something the Chicago grand jury will no doubt examine. The superficial evidence suggests that the habits of half a century are still with us. The "Big Four" still maintain, on the whole, relatively the same size and importance from year to year. Armour and Swift are still the biggest, Wilson and Cudahy still trail. If, as seems likely, this relative size stability is not the result of happenstance but of proportionate buying, we have today *both* elements which, as shown in 1919, enable the major packers to set nationwide meat prices.

The price power resulting from uniform margin calculations and proportionate buying is not, of course, absolute. If the packers sought tomorrow to halve or double meat prices, the classical principles of supply and demand would swamp them with unfillable orders or unsalable meat. *But within the wide range of prices compatible with supply and demand conditions at any time*, uniform margins plus proportionate buying give the packers ample latitude to maneuver prices.

Why do packers want high prices?

Assuming the packers still retain the power, which they utilized at least from 1885 to 1919, to bring about substantial price swings, the question may be asked: Why do they want higher prices now?

Two answers are possible, which the Chicago grand jury would do well to investigate.

1. *High prices and production control.* It is one of the peculiarities of the livestock industry, and especially of cattle raising, that high prices can be used to curtail rather than to expand production.

Each fall, the livestock raiser must decide how much stock to carry through the winter and how much stock to market immediately. His decision depends upon (a) the price and availability of feed, and (b) the price he can get if he markets immediately.

In the fall of 1945 and 1946, high prices determined the cattle growers' decision. With the livestock market booming and no guarantee of 1947 prices, more steers were marketed, and fewer kept for 1947, than in any other year in history. In 1945 alone, the cattle population declined by three million head, and a further decline followed in 1946. The 1947 slaughter has been running ahead of all earlier years, and the livestock population is thus still further declining. In other words, high prices are having the effect of actually curtailing supply.

Did the packers plan it that way? For a number of reasons, to be noted below, the "Big Four" fear full production, which threatens their entire system of market control. Like the dominant elements in steel, milk, and other commodities, their power is dependent in part on a "tight" market. Raising prices in the fall, by increasing the flow to market of immature calves, underfed or "unfinished" steers, and young or pregnant cows, is a means of keeping the market tight or "cozy."

The situation with respect to hogs is somewhat different, since hogs take less time to mature, and are more dependent on the cost of feed. The amount of hog production depends in large part upon the "corn-hog ratio" or relation between feed and animal prices. But here the packers may be involved in a second way. Directly or through affiliates and associates, the major packers have in the past been important factors in the grain markets, affecting the price of feed. Can it be that excessive feed prices today, with the resulting decline in pork production, are also not wholly natural phenomena?

2. *Driving out the "Independents."* After World War I, the chief complaint of the smaller or "independent" packers was that immature calves, pregnant cows, and "unfinished" animals were being lured to market by excessive prices, with a resulting tight supply the following year, and little chance for the independents to survive into the postwar period. Is history repeating?

While the statistics are not wholly reliable, there is reason to believe that the 60-odd medium-sized independents (who divide about 25% of the meat business) and the 3000 or more very small local slaughterers both flourished during the war. It is not unreasonable to suppose that one element in the "Big Four" calculations is how to limit or curtail this development of independent slaughtering. Excessive prices constitute an excellent technique to this end.

Under OPA ceilings, livestock tended to gravitate away from the primary markets where the major packers are strongest, and to reach market through less orthodox channels. Raising the price in the primary markets assures a greater flow into the packers' regular channels, and hence a smaller supply for the outside slaughterers.

Thirty years ago—and now

Nearly thirty years ago, right at the end of World War I, there was a situation not unlike that of today. President Wilson had asked the Federal Trade Commission to make its investigation, and the investigation resulted in a report and a series of recommendations. The report filled ten volumes. The recommendations went to the root of the problem as the Commission members saw it. They minced no words. The Federal Government, said the Commission, must acquire and operate as a governmental monopoly: the freight cars used for transporting all meat-animals; the principal stockyards; all privately owned refrigerator cars for shipping dressed meat; and enough branch packing houses, cold-storage plants, exchange buildings, etc., to assure adequate facilities for use by small independent meat packers, municipal meat plants and cooperative plants.

Nothing short of actual entry into the packing business by the Federal Government, said the report, could restore social responsibility to the meat industry. The letter to President Wilson containing these recommendations concluded with this: "... we believe that the establishment of such open competitive markets will be followed by an increase in livestock production. . . ."

These recommendations were never followed. The packers' lobbies in Washington worked feverishly to defeat them. Even the "consent decree" that followed the antitrust case built out of the FTC investigation has never really been enforced.

And so 30 years later, we start again to investigate the packers. It remains to be seen whether or not post-World War II's investigators will do their job with the thoroughness of the FTC 30 years ago. It remains to be seen whether they will have the courage to make recommendations adequate to the conditions they now find. And finally it remains to be seen whether or not we as a people will have learned, in this revival of the meat show, to recognize and to take the fundamental steps necessary to rewrite the plot.

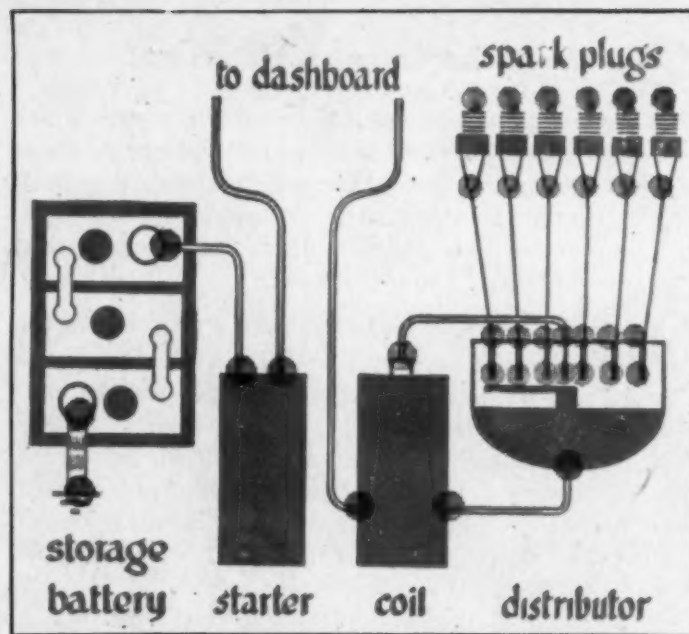
CHECKMATES FOR WINTER

Your car was not designed to cope with winter weather. Below-freezing temperatures, sleet, slippery or snow-filled roads, slush, salted ice on city streets — such conditions as these put a severe strain on both cars and drivers, and call for at least a minimum of protective care. On these pages CU lists and pictures some major protective moves, designed to checkmate the effects of winter operation on car and occupants. And on page 416 you will find some instructions for securing the best winter performance from your old car.

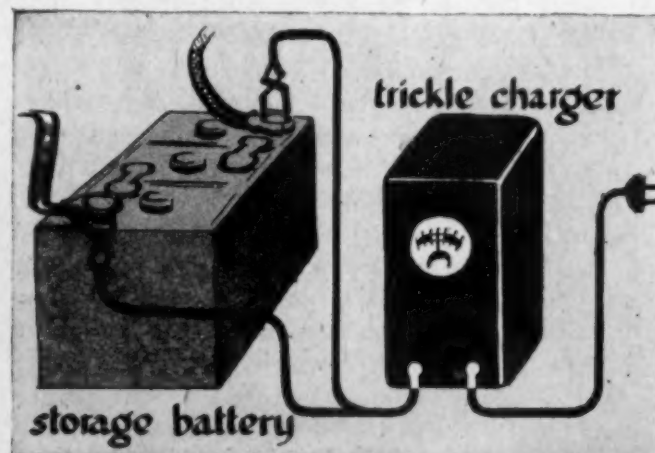


Ewing Galloway

4. Maintaining good winter vision requires equipment for combatting both ice and condensation. Ice has to be scraped off the windshields of parked cars, but it can usually be kept from forming in cars that are running by defrosters that blow hot air on the windshield, or by a heated defroster pane. Condensation on the inside of cold glass can be fought with defrosters, with heated or unheated panes attached to the glass, or by a fan that blows air across the windshield of your car.



1. For prompt winter starting, you need an easy-cranking engine and a hot spark. To insure getting highest possible voltage at spark plugs, clean, brighten and tighten all loose or corroded connections — there are 35 shown above, plus the ones under the dashboard. If you live in a very cold climate, for easy cranking use an "Acceptable" SAE-10 or 10-W oil (see page 394), and, unless your car gets hard driving, add kerosene in the ratio of one pint to five quarts of lubricating oil when average daytime temperature gets below 20° Fahrenheit.



5. Battery prices are high, and, as the temperature drops, more juice is required to get quick starting. Conserving your battery's energy is important. Have the battery tested frequently during the winter months, use the electrical equipment that depends on it sparingly, and keep your car in condition to start promptly (see page 416). If less energy is being replaced daily than is being taken out of the battery, a home charger (called a "trickle charger") can be used overnight, and will help restore balance (cost, \$10 or less).



2. After a few winters, the undersides of bodies and fenders may begin to rust through, unless protected from gravel, water, slush, and the corrosive action of ice-melting chemicals often used on city streets. Corrosion can be largely prevented by having an undercoat of rubber-based semi-plastic material sprayed on. This usually costs between \$20 and \$40, but may be a good investment for long-term owners. It makes for quieter running besides. Old cars must be carefully cleaned of dirt and rust before spraying.



6. In summer, water frequently condenses in the gas tank, where it remains — only to freeze — when winter comes. In order to keep such ice from blocking up the gas line, you will have to open the gas tank and drain out a few cupfuls, as shown above — just loosen the plug located for the purpose on the bottom of the tank. In addition, the gas strainers at the fuel pump and the strainers at the carburetor should be cleaned, and the fuel lines should be blown out with compressed air. At a garage the operation should cost about \$2.



3. In order to get best antifreeze protection and — if your heater uses hot water — the most heat for your passengers, use a "permanent" (ethylene glycol) antifreeze such as *Prestone*. Drain but do not flush the cooling system; flushing may start leaks, is best done in the spring. Covering part of the radiator or grille gives quicker warm-up, more under-hood and passenger heat. A special winter thermostat (\$5 or less installed) warms up the water faster. Water temperature should be kept at about 180° Fahrenheit.



7. Here are five standard aids to better traction for heavy winter going: 1) a narrow furnace scoop for digging yourself out; 2) a bucket of sand (or, if you want to be fancy, oak chips and rock salt) for icy streets; 3) a set of tire tracks for riding up and out of slippery spots or holes; 4) tires recapped with special mud-and-snow treads (these usually cost about \$2 more than regular recaps); and, 5) for general use in particularly difficult localities, a set of full chains.

FOR SOME TIPS ON ENGINE TUNE-UP, TURN THE PAGE

Besides the precautionary measures pictured on the preceding two pages, there are a number of other points that ought to receive some attention if your car is to perform well during the winter months.

Fuel system. Remove the air cleaner. See that the choke closes without sticking when the engine is cold (automatic) or when the choke button is pulled out (manual). Clean the screen on Carter *Climatic Control* chokes. If your car is used for short trips (up to a few miles) only, fasten the manifold heat-control valve in closed (cold engine) position.

Cooling system. If "permanent" antifreeze is used, install a winter thermostat opening at higher coolant temperature. Most antifreezes contain a corrosion inhibitor. If yours doesn't, add one. Check for leaks both before and 24 hours after putting in the antifreeze, and tighten all hose connections.

Ignition system. Clean and tighten all the terminals (see page 414) in the circuit from starter to starter-switch, to ammeter, to ignition switch, to coil, to distributor. Clean the inside of the distributor cap, brighten terminals there, and on all secondary (large) wires. Clean the spark plugs and set to recommended gap, usually .025 inch, but do not replace unless electrodes

are very badly eroded or porcelain is chipped at the base, or unless the plugs fail to fire. Have the distributor points inspected (do not allow filing) and set as recommended in car manual.

Lubricants. Frequent chassis lubrication will help keep water out of knee-action joints. If transmission gears (ordinary three-speed gearbox) shift hard, add three-fourths cup of kerosene to the gear box. Hypoid axle lubes do not have to be changed seasonally, but consult car dealer or instruction book. CU's when-to-change-oil rule for winter: multiply mileage of average car trip by 50 and change at that figure, but not oftener than each 500 miles, and at least once during the winter.

Electrical system. Clean and tighten battery terminals, ground connection, starter cable terminal. Have starter checked for worn brushes or bearings. Clean and tighten heater motor and switch connections, and the voltage regulator terminals.

Body care. The body of your car, including the chrome plating, should be waxed. Brush ordinary self-polishing (water emulsion) floor wax into the cracks behind metal strips, along welts of anti-squeak material, on rubber floor and trunk lid seals, at the points where sheet metal is joined, and at the bottom of the trunk lids and grilles. This keeps out moisture and reduces rusting. Powdered graphite blown into the locks will keep them working.

BEETHOVEN: Piano Concerto No. 2 in B-flat, Op. 19 & **BRAHMS:** Intermezzo in E, Op. 116, No. 6. William Kapell with the NBC Symphony Orchestra under Vladimir Golschmann. *Victor* Album M-1132 (four 12-inch records), \$4.85. ¶ For us, the chief interest of this album resides not in Mr. Kapell's excessively nervous playing of Beethoven's early and spirited Second Piano Concerto, but in the last side, which features the pianist's excellent solo performance of a somber, previously unrecorded Brahms intermezzo. The finest recorded performance of the Second Concerto we have heard is one by Artur Schnabel which was released in England by *His Master's Voice* a few months ago. These discs are likely to be available at any store specializing in imported recordings.

FRENCH CHANSONS (Fauré: *Après un rêve* & *Les Roses d'Ispahan*; Milhaud: *Four Chansons de Ronsard*; Duparc: *L'Invitation au voyage*; Bachelet: *Chère Nuit*). Lily Pons (soprano) with Orchestras under André Kostelanets and Maurice Abravanel. *Columbia* Album M-689 (three 12-inch records), \$4. ¶ Lily Pons' voice lacks the warm texture and command of color necessary for the effective projection of the lovely Fauré and Duparc songs in this album; but she gives a brilliant account of the brief and brittle little pieces which the contemporary master, Milhaud, wrote on her commission to texts by the 16th century poet, Pierre de Ronsard. The Bachelet song is something of a salon piece, and it is this number that fares the best. The recording is satisfactory.

new records

Next month's enlarged section will review a variety of records for Christmas: jazz, classical, and records for children.

HANDEL: Viola Concerto in B Minor (arr. Henri Casadesus). William Primrose with RCA Victor Orchestra under Frieder Weissmann. *Victor* Album M-1131 (three 12-inch records), \$3.85. ¶ Although the late French specialist in early music, Henri Casadesus, claimed this lively Concerto to be derived from a Handel original, there is more reason to believe that it is an essay of his own in "olden style." Indeed the music is more akin to Bach than to Handel; in any case, it remains an appreciated addition to the very slim repertoire for solo viola and orchestra. Mr. Primrose recorded this music for *Columbia* (Album M-295); and though the recording in the *Victor* set is richer in sound, we find his own playing and that of the supporting orchestra more vital and light-of-touch in the earlier album.

MOZART: Piano Concerto No. 15 in B-flat (K. 450). Kathleen Long with the National Symphony Orchestra under Boyd Neel. *Decca* Album ED-25 (three 12-inch records), \$7. ¶ Here is a beautifully modeled, though not very spontaneous reading of one of the great Mozart piano concertos. The playing is technically superb; recording, about perfect.

RACHMANINOFF: The Bells — Choral Symphony after the Poem of Edgar Allen Poe, Op. 35 (1. The Silver Sleigh Bells; 2. The Mellow Wedding Bells; 3. The Alarm Bells; 4. The Mournful Iron Bells). Santa Monica Symphony Orchestra under Jacques Rachmilovich with Choir of the First Methodist Church of Hollywood and Carmen Prietto (soprano), Brecee Westmoreland (tenor), Stephan Kemalyan (baritone). *Asch* Album 804 (four 12-inch records), \$6. ¶ This dramatic setting of Edgar Allen Poe's *The Bells* was considered by the late Rachmaninoff to be his finest composition; certainly the third and fourth movements of this score contain some of the composer's most strikingly eloquent pages. However, this first recording of *The Bells* is an almost complete failure, owing to very badly balanced and hopelessly unresonant reproduction.

STRAVINSKY: The Firebird — Ballet Suite. London Philharmonic Orchestra under Ernest Ansermet. *Decca* Album ED-30 (three 12-inch records), \$7. ¶ The orchestral playing in this performance of Stravinsky's *Firebird* music is not as brilliant and exciting as that heard in the *Columbia* album with Stravinsky and the New York Philharmonic-Symphony, or in the *Victor* set by Stokowski and the Philadelphia Orchestra; but the realism and power of the reproduction is quite another matter. Incidentally, this album includes more of the music from the ballet than Stokowski's, but not as much as does the recording conducted by the composer himself.

The food crisis—how to meet it

CONTINUED FROM PAGE 374

before there is a further spiral of prices. With the full powers of the government brought to bear on this central problem, food prices can be rolled back and held down. This will not only help consumers where they are hardest hit by inflation, but will serve notice that the prices of clothing and other goods and services will also have to come down. The effective way to roll back inflation is to defeat it first on the decisive food front.

"What is required is a co-ordinated system of food controls. The first essential is price control with food prices rolled back to more reasonable levels. A first step would be to roll the prices of such essentials as meats, dairy products and fats and oils halfway back to their wartime controlled levels. Part of the roll back should be absorbed out of the profits of distributors and processors.

Consumer subsidies

"The second essential is financing part of the roll back with consumer subsidies for basic foodstuffs such as meat, dairy products, and fats and oils. The cost of this program would possibly approximate two billion dollars for the next year. The subsidies should be paid to farmers, rather than to processors, to assure all-out production and to permit the imposition of ceilings at the farm level. Without such ceilings, it will be impossible to control prices at retail. There is nothing un-American about subsidies. They have been used to furnish bonuses to producers and to guarantee profits to shipowners. Consumers should not be regarded as second-class citizens when it becomes necessary to protect their welfare through subsidies.

"The third essential is a system of allocations to prevent the diversion of foodstuffs into non-essential channels. Allocations will assure the production of cheese and butter instead of ice cream and the use of grain for food instead of alcohol. They may also be used to stop the wasteful fattening of livestock.

Rationing

"The fourth essential is rationing of foods whose supply is short in relation to over-all demand. Rationing of meat, for example, would assure fair distribution of what is available — including shipments to relieve starvation abroad. Of course, it will take some time to organize a rationing system, but it is essential for the maintenance of price control. While the rationing system is being set up, the other integral components of the program will be taking hold. And rationing is needed, if for no other reason, as necessary preparation for the future, since no one knows or can possibly tell how long the present world food crisis will last.

"Each aspect of this program to roll back food prices

is tied in with all the others. Unless price ceilings are set on basic foodstuffs at all levels of distribution, the inflation in food cannot be reversed. Without consumer subsidies, food prices cannot be rolled back, especially sky-high meat and dairy product prices. Without rationing of scarce foods, fair distribution cannot be assured and a premium will be put on black marketeering. And unless the government allocates basic foods into essential channels, the distribution system will break down.

Put the pressure where it belongs

"This program is sound and it can work, provided Congress will immediately enact the necessary legislation. Emphasis should be put on the gravity of the crisis and on the need for getting the program under way without delay, rather than on the time that may be required to put some of its components into effect. Enactment of the program will enable the nation to meet the present emergency and provide a sound basis for long-range policies, since no one can forecast at this time when the world crisis in food will be overcome."

Statement of Ownership, Management, Circulation, etc., Required by the Act of Congress of August 24, 1912, As Amended by the Acts of March 3, 1933, and July 2, 1946

Of *Consumer Reports* published monthly at New York, N. Y., for Oct. 1, 1947
STATE OF NEW YORK }
COUNTY OF NEW YORK } SS.

Before me, a notary in and for the State and county aforesaid, personally appeared *Jean L. Whitehill*, who, having been duly sworn according to law, deposes and says that she is the *Managing Editor* of the *Consumer Reports* and that the following is, to the best of her knowledge and belief, a true statement of the ownership, management (and if a daily, weekly, semiweekly or triweekly newspaper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the act of August 24, 1912, as amended by the acts of March 3, 1933, and July 2, 1946 (section 537, Postal Laws and Regulations), printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Name of Publisher: *Consumers Union of U. S., Inc., 17 Union Square West, New York 3, N. Y.*

Consulting Editor: *Dexter Masters, 17 Union Square West, New York 3, N. Y.*

Managing Editor: *Jean L. Whitehill, 17 Union Square West, New York 3, N. Y.*

Business Manager: *None.*

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.)

Consumers Union of U. S., Inc., a nonprofit, membership corporation.

Colston E. Warns, President, Amherst College, Amherst, Mass.

Hartley Cross, Vice-President, Connecticut College, New London, Conn.

Dr. Harold Aaron, Secretary, 1078 Madison Avenue, New York, N. Y.

Bernard Reis, Treasurer, 10 East 40th Street, New York, N. Y.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state). *None.*

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

Consumers Union of U. S., Inc.

JEAN L. WHITEHILL, Managing Editor

Sworn to and subscribed before me this 10th day of September, 1947.

GEORGE SHIBUK, Notary Public.

(My commission expires March 30, 1949)

For the people *Cont'd from p. 376*

The F&DA claimed that the product had been shipped by McKesson & Robbins, Inc. from California to Arizona and by the American Medicinal Products, Inc., from California to Oregon.

This case is of particular interest because McKesson & Robbins, Inc. purchased the products from American Medicinal under a guaranty providing that no shipment would be either adulterated or misbranded within the meaning of the Federal Food, Drug & Cosmetic Act.

In spite of the guaranty, American Medicinal sold to McKesson & Robbins and to other customers a product which contained enough thyroid, according to the F&DA, to render the drug dangerous when consumed as directed.

For thus playing with the public health, American Medicinal Products, Inc., was fined \$25; its manager, Ernest G. Rurup, was fined \$1 and sentenced to 10 days in jail, but the jail sentence was suspended and Rurup placed on probation.

Not enough butter

Both Cudahy Packing Co. and Swift & Co. purchased butter from the Paola Butter Co., Paola, Kansas, under guaranties providing that each shipment would be neither adulterated nor misbranded within the meaning of the Federal Food, Drug & Cosmetic Act. The butter was packed and sold

both as *Cudahy's Sunlight Creamery Butter Net Weight 1 lb.* . . . *The Cudahy Packing Co. and Swift's Brookfield Butter Distributed by Swift & Co.* In both cases, butter was short weight, and the Paola Butter Co., admitting its guilt, was fined \$150 plus costs.

For other cases in which Swift's products were involved see the *April Reports*, adulterated butter; *May Reports*, low-grade cheese; *June Reports*, decomposed eggs.

Bad eggs

The Cudahy Packing Co. shipped almost 15,000 pounds of frozen whole eggs for commercial use from Nebraska to New York City, where the eggs were found to be decomposed. They were labeled *Cudahy's Sunlight Whole Eggs*. The packing company admitted that the product was spoiled and the eggs were released under bond on condition that the unfit portion be segregated and denatured under supervision of F&DA.

"Unholsum" bread

Breads labeled *Holsum Bread Honey Wheat*, or *Rye*, or *Enriched*, made by the Regan Brothers Company, contained cat hair, rodent hair, and insect fragments, according to charges by F&DA, which claimed that the bread had been contaminated with filth because of the unsanitary conditions under which it had been prepared and packed. The corporation was fined \$500 plus costs, and the plant superintendent was fined an additional \$100.

Letters

Cont'd from p. 375

precisely in the hope that I won't have to pay \$1000 for a radio, if a good one can be obtained for less.

FRANK KACSANDY

Ravenna, Ohio

Dear CU:

We shall, if we may, take a stand at variance with that of the writers of letters in the July and previous issues. As we see it, the criticisms that CU incurred were not alone those of specific details, but of the principles that guide the tone of CU's reports. As for those principles, we find them scientifically analytical in the best sense. . . . Even if we were not consumers in need of an impartial study of commercial products, CU reports would be invaluable to demonstrate the gross disregard for honesty that our advertisers evidently enjoy at the consumer's expense. A product today sells on its advertising, which means that the consumer pays, not only for the advertising, but for the inferiority (either relative or actual) of the product.

As for specific criticisms, your presentation of the case for Blue Cross was the only one reasonable. The reports on record information and the movie poll are highly desirable since entertainment is certainly an item to be reckoned by the consumer.

MR. AND MRS. R. L. TEPLITZ

Los Angeles, California

Cumulative Index

—Each issue contains this index of principal subjects covered since publication of the 1947 Buying Guide issue. By supplementing the Buying Guide index with this one, readers can keep abreast of changes resulting from new tests. Page numbers run con-

| | |
|--------------------------------------|----------|
| Athlete's foot, treatments..... | 217 |
| Automobiles.....69, 100, 149, 325 | |
| —accessories..... | 65 |
| —clutch..... | 351 |
| —engine trouble..... | 264 |
| —gasoline and mileage..... | 315, 353 |
| —jacks..... | 19 |
| —precautions for touring..... | 212 |
| —seat covers..... | 387 |
| —winter car care..... | 414 |
| Baldness..... | 112 |
| Bath preparations..... | 44 |
| Beans, baked..... | 37 |
| Blue Cross plan..... | 160 |
| Carbon paper..... | 71 |
| Cleaners for dishes..... | 63 |
| —for walls and woodwork..... | 6 |
| —for woollens..... | 144 |
| Clocks, electric..... | 284 |
| Coffee, soluble..... | 200 |
| Cellitis..... | 110 |
| Constipation..... | 77 |
| Contact lenses..... | 47 |
| Diabetes..... | 214 |
| Dishwashers, portable..... | 342 |
| Egg beaters..... | 254 |
| Fans, electric..... | 239 |
| Food mixers..... | 87 |
| Frozen foods..... | 203 |
| Gardening | |
| 42, 73, 103, 211, 252, 305, 351, 402 | |
| Hair dyes..... | 259 |

secutively from the January issue, Jan. 1-28, Feb. 29-56, Mar. 57-84, Apr. 85-132, May 133-180, June 181-228, July 229-276, Aug. 277-324, Sept. 325-372, Oct. 373-420.

| | |
|---------------------------------|----------|
| Hand cleaners..... | 349 |
| Health insurance..... | 75, 113 |
| Hearing aid batteries..... | 304 |
| Home building..... | 124, 171 |
| Heaters, electric portable..... | 396 |
| —cellars, pro and con..... | 312 |
| —cooperative housing..... | 271 |
| —flat roof, pro and con..... | 366 |
| —heating..... | 100, 109 |
| —new housing materials..... | 336 |
| —safety in the home..... | 400 |
| Ice cream mixes..... | 246 |
| —freezer..... | 248 |
| Insect repellents..... | 207 |
| Insecticides for gardens..... | 169 |
| Juice extractors..... | 14 |
| Lemon juice and teeth..... | 163 |
| Magnetic recorders..... | 98 |
| Meats, canned luncheon..... | 287 |
| Motor oils, summer..... | 208 |
| —winter..... | 394 |
| Obesity..... | 50 |
| Oil burners..... | 106 |
| —fuel..... | 109 |
| —installation..... | 343 |
| Paints, house, outside..... | 153 |
| —inside..... | 301 |
| Peas, canned green..... | 249 |
| Pencils, mechanical..... | 191 |
| Photographic equipment, cameras | |
| 90, 146, 191 | |
| —exposure meters..... | 3 |

| | |
|---------------------------------|--------------|
| —printer..... | 257 |
| —screens..... | 346 |
| Poliomyelitis..... | 354 |
| Pressure cookers..... | 40, 283 |
| Projectors, slide..... | 292 |
| Radio, Belmont..... | 38 |
| —batteries..... | 237 |
| —Fisher and Scott..... | 96 |
| —FM combinations..... | 194 |
| —portable radios..... | 233 |
| —midjet table models..... | 298 |
| —FM, Pilotuner..... | 329 |
| —table model..... | 390 |
| Record changers..... | 196 |
| Refrigerators, mechanical..... | 135 |
| Scouring powders..... | 242 |
| Sewing attachment..... | 202 |
| Sheets..... | 281 |
| Shirts, men's..... | 188 |
| Shoes, children's..... | 381 |
| Sinuses..... | 25 |
| Slips, women's..... | 10 |
| Soups..... | 70, 105, 148 |
| —jellied..... | 244 |
| Spot removers..... | 16 |
| Suits, men's summer..... | 190 |
| Television receivers..... | 141 |
| Tennis balls..... | 245 |
| Tires, how to add air..... | 67 |
| Toasters, electric..... | 59 |
| Tomato juice, canned..... | 297 |
| Tonsillectomy in children..... | 163 |
| Tractors, gardening..... | 252 |
| Vacuum cleaners..... | 183 |
| —removable filter bag..... | 296 |
| Weed killers, 2, 4-D..... | 103 |
| —for lawns..... | 305 |
| Washing machines, electric..... | 15, 31 |
| —automatic..... | 377 |
| —portable..... | 333 |
| Yeast, Fleischmann's..... | 359 |

To help *Reports* readers get "Best Buys" for their movie money, CU presents ratings made up with the aid of some 2000 subscribers, most of them group leaders, and members of CU's National Advisory Committee. Each participant, as soon as he sees a picture, notifies CU by special card whether he considers it to be "Excellent (E)," "Good (G),"

CU's movie poll

"Fair (F)," or "Poor (P)." The tabulation shows the percentage of replies in each category (largest vote is in bold). How several movie critics (Cr) felt is also indicated, to the extent that various opinions can be summarized. (CU neither selects the picture nor makes recommendations, but simply reports the results of its poll.)

| Picture and principal stars | Percentages | | | | | Picture and principal stars | Percentages | | | | | Picture and principal stars | Percentages | | | | |
|--|-------------|----|----|----|----|--|-------------|----|----|----|----|--|-------------|----|----|----|----|
| | E | G | F | P | Cr | | E | G | F | P | Cr | | E | G | F | P | Cr |
| BACHELOR AND THE BOBBY SOXER Shirley Temple, Cary Grant | 38 | 48 | 12 | 2 | GE | GHOST AND MRS. MUIR Gene Tierney, Rex Harrison | 25 | 52 | 17 | 6 | G | MOSS ROSE Victor Mature, Peggy Cummins | 14 | 61 | 14 | 11 | FG |
| BEST YEARS OF OUR LIVES Fredric March, Myrna Loy | 81 | 18 | 1 | 0 | G | GREAT EXPECTATIONS John Mills, Valerie Hobson | 79 | 16 | 5 | 0 | E | MOTHER WORE TIGHTS Betty Grable, Dan Dailey | 39 | 44 | 17 | 0 | FG |
| BOOMERANG! Dana Andrews, Jane Wyatt | 76 | 21 | 3 | 0 | E | GUILT OF JANET AMES Melvyn Douglas, Rosalind Russell | 12 | 24 | 47 | 17 | G | MY BROTHER TALKS TO HORSES Jackie Jenkins, Edward Arnold | 15 | 47 | 23 | 15 | F |
| BRUTE FORCE Burt Lancaster, Hume Cronyn | 36 | 36 | 28 | 0 | FG | HIGH BARBARIE June Allyson, Van Johnson | 21 | 49 | 24 | 6 | F | NORTHWEST OUTPOST Nelson Eddy, Ilona Massey | 0 | 30 | 20 | 50 | FG |
| CALCUTTA Alan Ladd, Gail Russell | 5 | 43 | 38 | 14 | F | HOMESTRETCH Maureen O'Hara, Cornel Wilde | 20 | 44 | 32 | 4 | FG | ODD MAN OUT James Mason, Kathleen Ryan | 44 | 36 | 14 | 6 | GE |
| CARNEGIE HALL Jascha Heifetz, Marsha Hunt | 18 | 47 | 26 | 9 | FG | HONEYMOON Shirley Temple, Guy Madison | 0 | 22 | 61 | 17 | F | PERILS OF PAULINE Betty Hutton, Billy De Wolfe | 20 | 59 | 21 | 0 | E |
| CHEYENNE Dennis Morgan, Jane Wyman | 9 | 57 | 29 | 5 | FG | THE HUCKSTERS Clark Gable, Deborah Kerr | 24 | 48 | 22 | 6 | G | POSSESSED Joan Crawford, Van Heflin | 30 | 53 | 17 | 0 | FG |
| COPACABANA Groucho Marx, Carmen Miranda | 0 | 21 | 79 | 0 | F | I WONDER WHO'S KISSING HER NOW June Haver, Mark Stevens | 38 | 46 | 16 | 0 | FG | RAMROD Veronica Lake, Joel McCrea | 7 | 24 | 48 | 21 | G |
| CROSSFIRE Robert Young, Gloria Grahame | 55 | 37 | 4 | 4 | E | IMPERFECT LADY Ray Milland, Teresa Wright | 0 | 39 | 44 | 17 | FG | SMASH-UP Susan Hayward, Eddie Albert | 15 | 46 | 26 | 13 | G |
| CRY WOLF Barbara Stanwyck, Errol Flynn | 17 | 50 | 33 | 0 | F | IT HAPPENED IN BROOKLYN Frank Sinatra, Kathryn Grayson | 18 | 34 | 40 | 8 | F | STAIRWAY TO HEAVEN David Niven, Kim Hunter | 65 | 25 | 5 | 5 | G |
| DARK DELUSION James Craig, Lucille Bremer | 0 | 50 | 20 | 30 | F | IT HAPPENED ON FIFTH AVENUE Ann Harding, Don DeFore | 35 | 45 | 13 | 7 | F | THAT'S MY MAN Don Ameche, Catherine McLeod | 0 | 50 | 33 | 17 | F |
| DEAD OF NIGHT Googie Withers, Michael Redgrave | 80 | 10 | 0 | 10 | E | IVY Joan Fontaine, Patric Knowles | 9 | 61 | 26 | 4 | G | THIS HAPPY BREED Celia Johnson, John Mills | 63 | 32 | 0 | 5 | E |
| DEAR RUTH William Holden, Joan Caulfield | 45 | 50 | 5 | 0 | GE | LADIES' MAN Eddie Bracken, Cass Daley | 10 | 50 | 35 | 5 | F | TWO MRS. CARROLLS Humphrey Bogart, Barbara Stanwyck | 6 | 44 | 38 | 12 | FG |
| DISHONORED LADY Hedy Lamarr, Dennis O'Keefe | 0 | 45 | 37 | 18 | F | LATE GEORGE APLEY Ronald Colman, Peggy Cummins | 48 | 39 | 10 | 3 | G | THE UNFAITHFUL Ann Sheridan, Lew Ayres | 30 | 53 | 14 | 3 | F |
| DUEL IN THE SUN Gregory Peck, Jennifer Jones | 28 | 37 | 26 | 9 | FG | LIFE WITH FATHER William Powell, Irene Dunne | 50 | 41 | 9 | 0 | GE | VARIETY GIRL Ella Raines, Edmond O'Brien | 30 | 60 | 10 | 0 | G |
| EGG AND I Fred MacMurray, Claudette Colbert | 17 | 57 | 19 | 7 | FG | MACOMBER AFFAIR Gregory Peck, Joan Bennett | 11 | 60 | 22 | 7 | G | THE WEB Ella Raines, Edmond O'Brien | 20 | 64 | 16 | 0 | GE |
| FARMER'S DAUGHTER Loretta Young, Joseph Cotten | 46 | 50 | 3 | 1 | G | MIRACLE ON 34TH STREET Maureen O'Hara, John Payne | 60 | 35 | 4 | 1 | GE | WELCOME STRANGER Bing Crosby, Barry Fitzgerald | 44 | 53 | 3 | 0 | G |
| FIESTA Esther Williams, Ricardo Montalban | 29 | 40 | 29 | 2 | G | | | | | | | WOMAN ON THE BEACH Joan Bennett, Robert Ryan | 7 | 27 | 33 | 33 | FG |
| FRAMED Glenn Ford, Janis Carter | 0 | 65 | 26 | 9 | FG | | | | | | | THE YEARLING Gregory Peck, Jane Wyman | 71 | 26 | 3 | 0 | GE |

The returns aren't in

When more returns are received from CU subscribers, these movies will be rated; until then, here are critics' scorings:

| Picture & Stars | Critics' Opinions |
|--|-------------------|
| THE ADVENTURES — Deborah Kerr, Trevor Howard | E |
| CYNTHIA — Elizabeth Taylor, George Murphy | FG |
| CORPSE CAME C.O.D. — George Brent, Joan Blondell | F |
| DARK PASSAGE — Humphrey Bogart, Lauren Bacall | F |
| DEEP VALLEY — Ida Lupino, Dane Clark | FG |
| DESERT FURY — Lizbeth Scott, John Hodiak | F |
| DESIRE ME — Greer Garson, Richard Hart | F |
| DOWN TO EARTH — Rita Hayworth, Larry Parks | FG |
| DUST BE MY DESTINY — John Garfield, Priscilla Lane | FG |
| FOXES OF HARROW — Rex Harrison, Maureen O'Hara | G |
| FRIEDA — Mai Zetterling, David Farrar | GE |
| FUN AND FANCY FREE — Disney cartoon, Edgar Bergen, Dinah Shore | G |
| GREEN FOR DANGER — Alastair Sim, Sally Gray | G |
| HEARTACHES — Sheila Ryan, Edward Norris | F |
| I KNOW WHERE I'M GOING — Wendy Hiller, Roger Livesey | G |
| KISS OF DEATH — Coleen Gray, Victor Mature | E |
| LONG NIGHT — Henry Fonda, Barbara Bel Geddes | G |
| LURED — Lucille Ball, George Sanders | F |
| MY FATHER'S HOUSE — Palestine: drama, documentary | FG |
| THE OUTLAW — Jack Beutel, Jane Russell | FG |
| REPEAT PERFORMANCE — Joan Leslie, Louis Hayward | G |
| ROMANCE OF ROSY RIDGE — Van Johnson, Janet Leigh | E |
| ROOSEVELT STORY — Documentary, Franklin Delano Roosevelt | GE |
| SECOND CHANCE — Kent Taylor, Louise Currie | F |
| SHOE-SHINE — Italian | E |
| SINGAPORE — Fred MacMurray, Ava Gardner | F |
| SONG OF LOVE — Katharine Hepburn, Robert Walker | E |
| SONG OF THE THIN MAN — William Powell, Myrna Loy | FG |
| TAWNY PIPIT — Bernard Miles, Rosamund John | E |

Older but still active

These releases may still be showing in your community; here is how CU subscribers have rated them in the past:

| Picture & Stars | % Rating |
|--|----------|
| BLAZE OF NOON — Anne Baxter, Sonny Tufts | 50 G |
| BRASHER DOOBLOON — George Montgomery, Nancy Guild | 40 F |
| BRIEF ENCOUNTER — Celia Johnson, Trevor Howard | 80 E |
| CALIFORNIA — Barbara Stanwyck, Ray Milland | 55 G |
| DEVIL THUMB A RIDE — Lawrence Tierney, Nan Leslie | 52 F |
| FABULOUS DORSEYS — Tommy & Jimmy Dorsey, Janet Blair | 39 P |
| FEAR IN THE NIGHT — DeForest Kelley, Kay Scott | 42 G |
| HENRY V — Laurence Olivier | 95 E |
| IT'S A WONDERFUL LIFE — James Stewart, Donna Reed | 70 E |
| IVAN THE TERRIBLE — Cherkassov, Tselikovskaya | 31 E |
| LADY IN THE LAKE — Robert Montgomery, Audrey Totter | 57 G |
| THE LOCKET — Laraine Day, Robert Mitchum | 53 G |
| LOVE AND LEARN — Jack Carson, Martha Vickers | 60 F |
| MR. DISTRICT ATTORNEY — Marguerite Chapman, Dennis O'Keefe | 42 F |
| MY FAVORITE BRUNETTE — Dorothy Lamour, Bob Hope | 54 G |
| NORA PRENTISS — Ann Sheridan, Kent Smith | 38 G |
| OPEN CITY — Aldo Fabrizi, Anna Magnani | 65 E |
| PURSUED — Robert Mitchum, Teresa Wright | 59 G |
| RED HOUSE — Edward G. Robinson, Judith Anderson | 54 G |
| RAZOR'S EDGE — Tyrone Power, Gene Tierney | 36 E |
| SEA OF GRASS — Spencer Tracy, Katharine Hepburn | 48 G |
| SINBAD THE SAILOR — Maureen O'Hara, Douglas Fairbanks, Jr. | 53 G |
| STALLION ROAD — Ronald Reagan, Alexis Smith | 68 G |
| SUDDENLY IT'S SPRING — Paulette Goddard, Fred MacMurray | 52 G |
| THAT WAY WITH WOMEN — Sydney Greenstreet, Martha Vickers | 66 F |
| TILL THE CLOUDS ROLL BY — Judy Garland, Robert Walker | 52 G |
| TRAIL STREET — Randolph Scott, Anne Jeffreys | 53 G |
| UNDERCOVER MAISE — Ann Sothern, Barry Nelson | 55 F |
| WELLDIGGER'S DAUGHTER — Raimu, Fernandel | 72 E |

CU for CHRISTMAS



This drawing, done for CU by Covarrubias, appears on all CU's gift cards

BEST BUY

The very best gift you could find for your friends, without your ever getting caught in the Christmas crush . . . CU Reports . . . the facts your friends will need before they buy . . . your gift will help them save money and get better quality

LOW RATES

And, if you enter two or more subscriptions at the same time (your own renewal may be one), you can take advantage of CU's gift rates . . . good up to December 31, 1947.

A single subscription is still \$5, but you get

2 FOR \$4.50 EACH • 3 FOR \$4 EACH • 4 FOR \$3.75 EACH • 5 OR MORE, \$3.50 EACH

BUYING GUIDE

Your gift subscriptions will start with the December issue — CU's big, annual Buying Guide. The 1948 volume will contain hundreds of reports on foods, cosmetics, drugs, clothing and household equipment . . . invaluable for day-to-day buying, the year 'round

consumers union

17 UNION SQUARE, NYC 3

I enclose \$ for the following subscriptions to CU Reports. (One for \$5; 2 for \$4.50 each; 3 for \$4 each; 4 for \$3.75 each; 5 or more, \$3.50 each.) All subscriptions must be entered at the same time for these rates to apply

NAME.....

ADDRESS.....

☐ Send gift card

NAME.....

ADDRESS.....

☐ Send gift card

NAME.....

ADDRESS.....

☐ Send gift card

NAME.....

ADDRESS.....

☐ Send gift card

NAME.....

ADDRESS.....

☐ Send gift card

Your name and address

NAME.....

ADDRESS.....

☐ Please renew my subscription for 1 year